A critical reflection on how immersive learning can be used to facilitate high quality teaching and learning in educational settings

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Abi Shaw
The Cambridge Partnership - University of Cumbria

Abstract
This practitioner-led research focuses on the extent to which immersive learning can be used to facilitate quality teaching, whilst supporting children's engagement with the characteristics of effective learning: play and exploring; active learning; and creating and thinking critically. Data was collected in a fully immersive infant school through systematic observation, and triangulation was used to ensure trustworthiness through the use of questionnaires. Findings of the present study suggest immersive learning supports teacher's ability to combine 21st century skills and traditional teaching roles, whilst children were observed engaging in all areas of effective learning.

Introduction
The focus of this research is to investigate how immersive learning (IL) can be used to combine 21st century and traditional teaching skills in order to allow children to engage with the characteristics of effective learning. Teachers' roles are evolving as they are required to develop lifelong learners, facilitating the development of knowledge, higher-order thinking and questioning. Immersion and the characteristics of effective learning developed as the research focus as I was currently training in a fully immersive school, therefore saw the impact these can have on learning and wanted to develop practice in this area. It is important teachers improve their practice in order to provide children with opportunities to develop learning skills which will support them through education and later life. Literature indicates project-based learning (P-BL) and immersing children in a project is an effective pedagogical approach as they allow for student-centred interactions, children take control of their learning through meaningful projects which engage, motivate and foster creativity in young children.

Research was conducted in an outstanding, inner-city school. This is a diverse school with a high percentage of EAL, SEN and PPG pupils. The school is fully immersive, classrooms are decorated in accordance with a termly theme and key questions which lead to a final event, or Purpose of Learning. To begin with, the research draws on a literature base which outlines characteristics of quality teaching, both traditionally and in the 21st Century, which will then develop into an analysis of P-BL and the impact this pedagogy can have on learning before exploring elements of IL (immersive learning) as a form of P-BL. The research design is then established, evaluating methods and any ethical considerations given. The original theory base will be combined with research findings and discussed before providing conclusions and implications for future practice.

Literature Review
Quality Teaching
Teacher quality is a defining element of schools aiming to raise achievement and is the second greatest factor impacting learning (Maruli, 2014), yet many believe they understand quality teaching but cannot define it (Michelli et al, 2017). Black and Williams (cited in MacGregor, 2007) summarise quality teaching as what drives learning and pupils' activity, whilst Good and Brophy (cited in MacGregor, 2007) state instruction, management, progress monitoring and realistic standards are defining elements.

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A framework created by Charlotte Danielson categorises traditional quality teaching characteristics necessary for effective learning (Cooper, 2014). Danielson (2013) suggests quality teaching consists of planning and progression, focused learning environments, meaningful instruction and professional responsibilities. Another traditional framework, the Classroom Assessment Scoring System (CLASS), compliments Danielson's themes. The CLASS framework outlines three characteristics of quality teaching: 1) emotional support; 2) classroom organisation; and 3) instructional support (Coe et al, 2014).

Although the above characteristics come to mind when thinking of the teaching profession, Stronge, Grant and Xu (2015) state it is time to review these roles, suggesting a new definition of quality is required for the 21st century. Scott (2015) states four characteristics of effective 21st century teaching: 1) personalising learning, allowing children to approach problems in their own way; 2) using problem-based learning to tie real-life projects children care about with curriculum goals, allowing children to manage their learning (Trilling & Fadel, 2009); 3) engaging and motivating learners, developing interest and encouraging confidence through realistic scenarios (Scott, 2015), and planning learning around meaningful questions (Meyer et al, 2008); and 4) stimulating creativity and curiosity is suggested to be the ultimate teaching goal (McLoughlin & Lee, 2008), generating ideas and concepts to create meaningful experiences which do not extinguish creativity (Robinson, 2006). Stronge, Grant and Xu (2015) argue combining such skills with traditional roles is essential to support children's evolving needs.

Quality Learning

The definition of quality learning is not agreed by all, but it is understood that learning is a process, carried out as the result of something (Killen, 2005). Nightingale and O'Neil (1994) suggest seven quality learning characteristics: applying knowledge to solve problems, communicating knowledge, retaining new information for extended periods, making connections and independently discovering and creating new knowledge. Ahlberg (2003) suggests quality learning is meaningful, deep, transformative and metacognitive. The Early Years Foundation Stage document, Development Matters, encompasses these factors into characteristics of effective learning: play and exploring, active learning and creating and thinking critically (Standards and Testing Agency, 2017).

Play and exploration are crucial elements of learning, Vygotsky stated in play, children function at their peak level, exceeding their actual age or behaviour (Hutchin, 2013). By providing sensory experiences, play and exploration bring together old knowledge, combing and refining new ideas in imaginative ways (Standards and Testing Agency, 2017). The most effective learning demands energy and commitment from children, this occurs through active learning as the individual learns through doing, concentrating and expending effort through persisting with activities (Moylett, 2014), by working at the limit of their zone of proximal development, the child becomes deeply involved in learning (Hutchin, 2013). Creating and thinking critically supports children to develop their own ideas, make connections and choose ways to do things (Early Education, 2012). A fundamental learning process, creating and thinking critically means children play with ideas in a range of scenarios, with a variety of resources, to uncover connections, and coming to new, better understandings (Hutchin, 2013).

Project-Based Learning

P-BL is a pedagogy with the core idea that children's interest and serious thinking can be developed through captivating projects which allow children to acquire new knowledge (Efstratia, 2014). P-BL supports deeper engagement with learning as projects have a direct relevance, therefore supporting pupils and developing useful skills for the future (EEF, 2016). Real-world problems, employed by teachers, engage students through questioning, creativity, collaboration and problem-solving (Keengwe, 2015). Sullivan (2017) supports this, suggesting such environments enable creativity as

children are given freedom of intelligence, continuity of experience and interaction. Kaldi, Fillippatou and Govaris (2011) agree, stating when teachers create P-BL opportunities, children communicate, create and think practically due to engagement in active enquiry, exploration and decision making. Children have a level of control over the topics, questions and activities supporting engagement and motivation for learning (Blumenfeld et al, 1991). P-BL creates student-centred learning communities which develop active learning and offer opportunities for children to explore subjects in greater depth through problem-solving (Keengwe, 2014). Mergendoller (no date) supports this, suggesting P-BL is an influential pedagogy, helping children learn to be critical thinkers, make thoughtful decisions and reasoned judgements. Hugerat (2016) further agrees, stating P-BL creates favourable learning environments contributing to improved interest and motivation to learn, therefore supporting higher educational achievement.

Immersive Learning

The underlying philosophy of IL arose from, and is inspired by, Piaget's constructivism which sees children as active learning participants, Paperr's theory focusing on social engagement, Vygotsky's ideas on socio-cultural activities, and Maslow's notion that humans need to learn and strive to increase intelligence (Tomei, 2008). Due to incorporating such theories, IL allows children to deeply engage in meaningful learning, engaging all senses and allowing the active construction of knowledge (Wankel & Blessinger, 2012). IL involves complete decoration of the classroom, which is developed around a theme, with spaces for learning having firm links with the chosen project and transforming the entire room to create realistic experiences (Paige, Lambert & Geeson, 2017). Such environments are believed to equip children for forthcoming study, social or work experiences, and developing life-long learners through child-centred approaches which allow children to directly participate in engaging and interactive activities (Tomei, 2008). Creating a stimulating environment is believed to affect children's academic performance over a year by up to 25% (Big Idea, 2015), and through immersive projects children develop maths, science, technology, computing and art skills through addressing local or global challenges (Nichols, Cator & Torres, 2016). The teacher's primary role shifts from information dispenser to guiding knowledge construction (Johnston, 2009), through collaborative work, valuable questioning, problem-solving and modelling key learning skills in order to support children to share their thinking with the world (Nichols, Cator & Torres, 2016).

After exploring the literature, I decided to investigate how IL can be used to facilitate the combination of contemporary and traditional teaching skills in order to support young children's characteristics of effective learning. This was chosen as the research focus as literature suggests combining teaching skills to redefine quality teaching, and supporting such learning characteristics, can prepare children for the future and create lifelong learners who explore new ideas, actively engage in learning and investigate solutions to problems in creative and critical ways. The literature suggested P-BL and IL have the characteristics to support such skills, however, I discovered a distinct lack of research into IL, influencing the topic choice, as I wanted to explore new ground in order to improve teaching practice.

Research Design

The present study is a quantitative, small scale, practitioner-led piece of research. The interpretive paradigm directed this research as I attempted to interpret what was seen and felt, in order to gain information from others (Arnold, 2012). Practitioner-led research was chosen due to the positive impact it can have on both teacher and pupils, and allowed me to choose their own topic, methods and draw their own conclusions to support future practice. Menter et al (2011) state practitioner-led research positively impacts pupils' learning and that research allows practitioners to improve their understanding of the teaching practice and areas of development. Robinson and Lai (2006) state research as a form of professional development helps teachers gather evidence, learn new ways to meet their pupils' needs and develop professionally. Practitioner-led research is being carried out to answer the following research question:

To what extent can immersion be used as a form of P-BL to facilitate quality teaching in order to support the characteristics of effective learning in early educational settings?

The aims of this research are as follows: a) to reflect on how immersion can be used as a method of P-BL to support and combine quality teaching skills, b) to analyse how immersion can be used to facilitate the characteristics of effective learning in young children, and c) to develop my teaching practice.

Systematic Observation

The main method of data collection took the form of systematic observations. Observations were carried out over a two-hour period, these periods were divided into half an hour sections, and a total of five observations were carried out over the period of one week. It has been argued that systematic observations only draw attention to explicit behaviours shown during the observation, therefore simplifying or overlooking less noticeable behaviours (Denscombe, 2014). Regardless of this, systematic observations were chosen are the main method of data collection as the research is small-scale and such observations include a schedule which makes research accurate, giving objective results and allowing for extensive volumes of information to be gathered over a short period (Denscombe, 2014).

An action checklist was used during observations to tally behaviours exhibited by both teachers and pupils, a tally was made for every minute each characteristic was shown. The checklist was developed using previously used frameworks and key research which highlighted contemporary and traditional teaching methods and strategies used by high quality teachers. Alongside this, an action checklist was used highlighting characteristics of effective learning, developed using the Early Years document, Development Matters. In order to avoid oversimplification, a comment box was placed next to each characteristic of teaching and learning in order to record extra information, provide context and note any additional behaviours which may have otherwise been overlooked. Jackson (2008) states it is essential that researchers appreciate the definitions of each behaviour they are observing, in order to support the reliability and validity of the research, I kept a record of definitions for each characteristic on the checklist and referred to this during observations.

Questionnaires

Triangulation was a method used in order to support the reliability and validity of results collected. Scott and Morrison (2006) suggest cross-checking results by collecting information through different forms of data on the same theme makes validation possible. Questionnaires were used as the supporting method in the hope findings would correspond with observational results, therefore supporting the validity of conclusions and controlling researcher bias (Martella et al, 2013).

Questionnaires used comprised of closed questions, asking teachers for their views on how IL can facilitate the different characteristics being looked for during observations. Closed questions were used to structure and categorise the answers, this was done to ensure answers remained relevant and could be used to check observational findings (Denscombe, 2014). It is argued closed questions force structure, creating bias and steering participants' answers towards the researcher's viewpoint (Denscombe, 2014). In order to avoid this, respondents were given the opportunity to rate their answers, stating how strongly they agreed or disagreed on scale from one to five in the form of a Likert Scale. Cohen, Manion and Morrison (2018) state Likert Scales are beneficial for researchers as they create a sense of sensitivity and differentiation of response whilst still generating numerical data.

Ethical Consideration

Denscombe (2014) states any study comprising of gathering data from or about living individuals generally requires ethical scrutiny and normally needs to be considered by an Ethics Committee if it is planned for the data to be collected through questionnaires, interviews or observations. The current research collected data through two of the suggested methods therefore prior to data collection a research proposal and ethics form were submitted, and ethical approval was granted.

It is vital ethical consideration is given to any piece of research, and that researchers manage their studies in a way which safeguards participants, guarantees voluntary participation based on informed consent, deception is avoided and operates with scientific integrity (Denscombe, 2014). The following research complies with the Ethical Guidelines for Research stated by BERA (2011). Individuals were treated fairly and respected, voluntary consent was gained from a Gatekeeper, the head of school, and participants, the class teachers using consent forms. All information remained confidential and anonymous, names or personal details were not collected and therefore participants cannot be identified. Due to young children being involved, special consideration was given, and the issue of informed consent arose. In order to follow the BERA (2014) guidelines, research complied with the UNCRC Articles 3 and 12, and consent was gained from 'responsible others', the class teachers and head of school, both of whom have a duty of care towards the children. Alongside this, verbal assent was gained from the children after providing them with a description of the research given to the children in a developmentally appropriate manner.

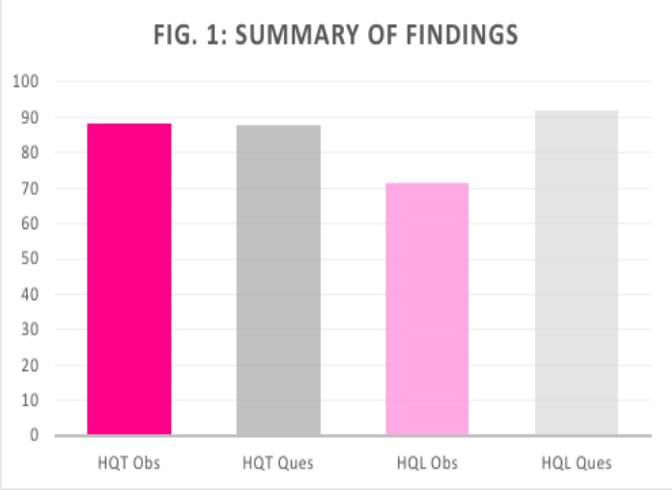
Findings and Discussion

To begin with, I became familiar with the data, methodically checking for unusual data or anomalies to clear and reduce data. The data was reduced and grouped into meaningful groups and percentages and descriptive statistics were used to find averages, condensing the data into manageable groups and charts were created. Data collected through observation was compared to questionnaire results and synthesised in order to see occurring patterns or themes, and conclusions were drawn from these. Taking a deductive approach allowed me to begin with a question and theory basis, analyse data in response to these and explain how findings fit with the original research question and literature. The key question answered was:

To what extent can immersion be used as a form of P-BL to facilitate quality teaching in order to support the characteristics of effective learning in early educational settings?

Summary

The data collected showed positive results, suggesting IL can be used to facilitate quality teaching and the characteristics of effective learning in early educational settings. Children were observed being immersed in a key theme: *'Can we turn trash into treasure?',* the classroom was decorated with an under the sea theme and children were creating objects from recyclable materials to sell in a pop-up shop and donate money collected to a marine conservation charity, as well as engaging in other activities such as investigating sea creatures.

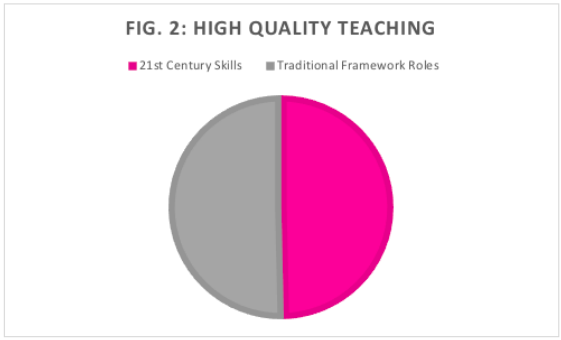


During 88.1% of the time being observed, teachers showed characteristics of high quality teaching, including engaging and motivating learners, providing emotional

support and cultivating creativity and curiosity. During 71.5% of the time, children showed characteristics of effective learning, playing and exploring, creating and thinking critically and actively learning (see figure 1). This positively matched questionnaire findings, the extent to which IL facilitates quality teaching was given an average score of 4.4 out of 5 (88% agreement), whilst quality learning was given 4.6 out of 5 (92% agreement). As both data collection methods resulted in high percentages, therefore supporting one another, it could be suggested IL can be used as a tool to facilitate quality teaching and learning. The following analysis will further breakdown the data collected to see the extent to which IL supports different elements of teaching and learning.

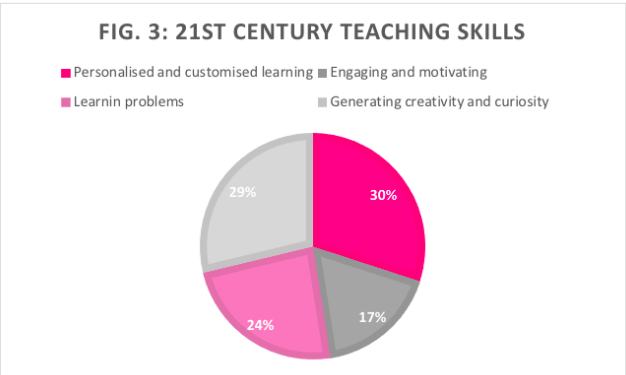
High Quality Teaching

Of the time teachers were observed showing characteristics of quality teaching, 49.65% of this time highlighted 21st century skills, whilst 50.35% showed elements of more traditional roles (see figure 2). It can therefore be suggested IL supports teachers' ability to display a range of traditional teaching skills, including planning, preparation or instruction as suggested by Cooper (2014), Coe et al (2014) and Hamre, Goffin and Kraft-Sayre (2009). Whilst doing this, immersion almost equally allows teachers to incorporate 21st century skills, such as personalised learning or providing problem-based activities as stated by Scott (2015). This supports the conclusions of Stronge, Grant and Xu (2015) suggesting future practice should incorporate traditional and contemporary teaching roles in order to be of high quality, something IL facilitates.



21st Century Skills

Figure 3 shows a breakdown of 21st century skills teachers displayed and the percentage of time these skills were seen. A range of skills were frequently seen, with engaging and motivating learners being observed the most, 34% of time. Blumenfield et al (1991) support these findings, suggesting future practice should incorporate P-BL to engage and motivate children through interesting topics, questioning and activities. Tomei (2008) further supports findings, stating IL gives teachers the opportunity to plan interactive activities which engage learners. Teachers were seen using the environment as a stimulus, complete immersion encouraged independent work, children's work was used to add to the décor and learning was developed through topic-related questioning. Meyer et al (2008) support this, implying future practice should engage children through developing learning with key questions which are meaningful and worthwhile. Despite engagement and motivation being observed the most, this characteristic was not rated as the most supportive characteristic from teachers, receiving an average score of 4 out of 5. Although teachers agreed that IL supports engagement and motivation, they did not believe this was the most significant element.



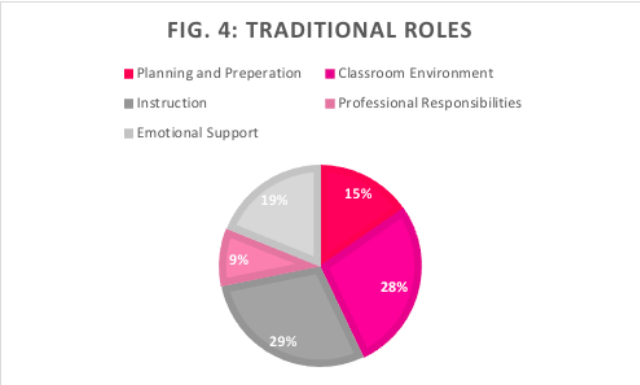
In comparison, incorporating problems into children's learning was seen less frequently, 19% of the time (see figure 3), however teachers stated they strongly agreed that IL allows for the incorporation of problems into teaching. Observational results could suggest IL places a higher emphasis on

engagement and motivation as it was observed more frequently, however it is much more difficult to observe these characteristics, and therefore suggests why teachers rated this element highly. Despite this, children were provided which regular problems such as *'how could we organise the pop-up shop?'* or *'how can we safely transport an egg?'* which both had clear links to the Early Years Curriculum, in particular Understanding the World. Efstratia (2014) confirms findings, stating this form of pedagogy capture's children's interests, allowing them to applying knowledge through problem-solving challenges. Trilling and Fadel (2009) and Scott (2015) further confirm this, suggesting in future practice, teachers should drive questions which support learning, linking problems to the curriculum and helping students learn through real-life problems

Personalised and customised learning and generating creativity and curiosity were also observed frequently (see figure 3), which was supported by questionnaire results as both received an average rating of 4.5 out of 5. Teaching was personalised as children were encouraged to reflect on the topic, resources provided supported learning and incorporated the theme, for example using shells and pebbles as maths manipulatives, teacher's facilitation varied depending on the individual child and children were provided with open-ended activities, for example free writing. Scott (2015) confirms this stating quality teaching involves cultivating children's sense of wonder through open-ended activities and allowing learners to choose their own learning experiences. Stonge, Grant and Xu (2015) further support this, emphasising the need for future practice to teach children how to learn, developing knowledge and higher order thinking skills. Curiosity and creativity were developed through posing *'I wonder…'* questions, creating artwork in response to work on Andy Goldsworthy, and supporting children turning old tins into treasure. Sullivan (2017) suggests key areas of P-BL such as freedom of experience enables student creativity, and Stronge, Grant and Xu (2015) and Robinson (2006) further support this, suggesting future practice should create meaningful experiences which tap into children's creativity.

Traditional Frameworks

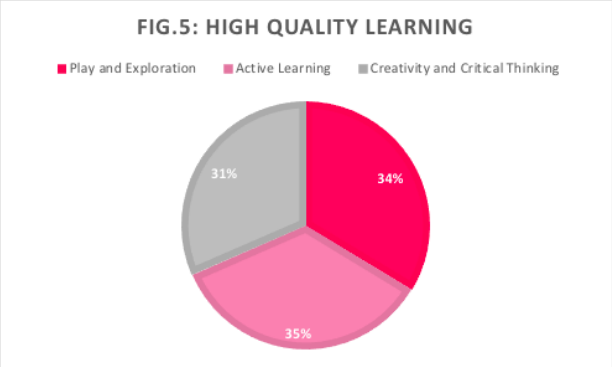
A similar pattern was found after analysing data on traditional teaching characteristics (see figure 4), all characteristics were seen, however some more frequently than others. Professional responsibilities were only observed 9% of the time. Again, it could be suggested this is due to the nature of the characteristic, however teachers were seen communicating with parents at the pop-up shop, sharing the topics next steps with support staff and collecting evidence of learning, all elements Cooper (2014) and Danielson (2013) suggest constitute as quality teaching. Questionnaire responses also supported this as teachers agreed immersion supports their ability to carry out their professional responsibilities.



Organisation of the classroom environment and instruction were observed the most frequently (see figure 4), and teachers rated each element 4.5 out of 5. The classroom environment was enhanced as teachers engaged children by providing a purpose, classroom decoration provided a learning stimulus, and the pop-up shop was used to motivate children to do their best possible work. Danielson (2013) supports this, therefore future practice will create a classroom environment valuing hard work, perseverance and positive relationships. Instruction involved the adult being a learning facilitator, modelling key skills children could apply to independent enquiry and actively involving children in feedback. Hugerat (2016) supports this, stating P-BL allows teachers to create favourable classroom

climates which improve interest, motivation, and can be positive and supportive therefore increasing achievement.

High Quality Learning



Each of the three characteristics of effective learning were seen almost exaclty the same amount of time (see figure 5). When playing and exploring children were observed using their sense through sand and musical play, using the pop-up shop as a role-play stimulus and engaging in open-ended activities, faciliated by teachers. Early Education (2012) supports this, stating children act out their experiences and learn through trial and error when playing and exploring. When engaging in active learning, children were seen becoming engaged in the theme, thinking of ideas of how to develop items for the pop-up shop, using the thought of parents as customers in their shop to motivate them to do their best work and showing resillience when facing challenges, such as correcting their art work if certain materials didn't work. The Standards and Testing Agency (2017) support this, suggesting active learning improves persistence, resillience, engagement and motivation. Keengwe (2014) furthers this, stating practice should create student-centred learning, resulting in more engaged and active learing as children explore at greater depth. Lastly, creating and thinking critically was shown as children tested out ideas of how to turn trash into treasure, created a giant 'trash' shark and problem-solved when challenged to create a vehicle to safely transport an egg for the Easter Bunny. Moylett (2014) supports this stating when children create and think critically they reason and problem solve, use unique creative ideas and come to new understandings.

It could be suggested, incorporating IL into future practice, will combine teaching skills in order to facilitate all characteristics of effective learning, with not one area supported more than another. When comparing questionniare findings, teachers gave an average score of 4.5 out of 5 when rating the extent IL supports quality learning. Supporting this, Kaldi, Fillippatou and Govaris (2011) state P-BL allows children to be creative whilst engaged in active learning and exploration. Mergendoller (no date) furthers this, stating P-BL is a powerful learning tool developing critical thinkers who make thoughtful decisions and exercise reasoned judgements.

Triangulation of data supports the truthfulness of data as questionnaire findings supported observational results, reducing researcher bias. If similar research was to be carried out again, consideration would be given for aspects of teaching, such as professional responsibilites, which are not easily observed, and addressed to gain greater insight. When observing, smaller time frames would also be given, for example five-minute sections rather than fifteen to allow for higher levels of accuracy and to gather more data.

Conclusion

This study has allowed me to draw their own conclusions and implications for future practice. IL has the ability to redefine teaching, incorporating traditional and contemporary teaching skills, facilitating learning through key projects and questions. The practitioner will now question the purpose of learning planned and provided, using a combination of skills to create purposeful learning communities, developing 'hooks' for children to work from in their own, individual way, facilitating children's interests and modelling key skills which children can apply to their independent enquiry. As children develop their interest, the practitioner will extend learning through valuable feedback and

questioning, developing children's thoughts and extending learning to the next level. The practitioner will consider the environments they create, ensuring these used as a learning stimulus, inspiring learning and encouraging questioning. Through incorporating elements of IL into daily practice, teachers can allow children to follow their own interests, think critically, problem-solve and create their own solutions. Therefore, developing lifelong learners and preparing children for an unknown, ever-changing future.

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