

IRIS: Insightful Resource for Infant Success.

Section 1 – Business Plan (1770 Words).

The Entrepreneur.

According to Gerlach (2021) and Kaz (2017), an entrepreneur is an individual with a passion who discovers an issue and explores opportunities and innovative ideas that will contribute value to their vision to improve outcomes for Children and their families. The entrepreneur of this product is a practitioner in an early year setting, with 13 years of experience in the profession, and is passionate in observing and supporting the learning and development of young children, and who has experienced first-hand several challenges of utilising the conventional technique of paper-based methods to record observations in educational settings, the primary issue being the possibility of damage or loss when documenting. Another challenge is the time that it takes to carry out observations and recording it by hand, which disrupts meaningful sustained shared thinking in the moment and takes the eye of a practitioner from further observation of meaningful learning. Where time is concerned, these factors result in a limited number of observations being carried out per week. This inefficiency makes it difficult to assess learning effectively and produces limited reflections of children's abilities. The idea of IRIS, which is an acronym for Insightful Resource for Infant Success and is a symbol for the observing eye, transforms the observation process by offering a more direct, secure, and effective method to record observations and provides a detailed format to monitor children's overall development. This solution has a distinctive value proposition by adopting the digital era and complying with current school curricula.

Executive Summary

The Curriculum for Wales' non-maintained nursery settings (2022) state it is now a requirement to carry out observations on children's play to enhance their progression in their early life. Renowned theorists, such as Piaget, Vygotsky and Froebel have each contributed approaches that emphasize the significance of quality observations in supporting individual learning and strengthening of abilities. This is carried out through analysing their engagement to play, their interactions with others and how they are continuously conceptualising their world. (Aubrey and Riley, 2022, Bradbury and Swales, 2022, and Conkbayir and Pascal, 2014).

IRIS Software aims to transform the observation process by offering a more direct, secure, and effective method to record observations and provides a detailed format to monitor children's overall development. Although there are AI software available that support teachers, for example for marking the work of older children through speech to text, the gap in the market that this product wishes to fill is to target the audience of early years practitioners. This solution has a distinctive value proposition by adopting the digital era and compliments the detail and quality of observations, whilst decreasing the workload for practitioners, allowing them to focus on delivering more meaningful learning experiences for the children in their care.

IRIS – Description and How it Works.

IRIS consists of a product and an AI computer software that complement each other to ensure the aims of the business model. The IRIS Observational Band is a wearable device around the wrist, made from recycled stainless steel and PET plastic, for its sustainability and durability. These bands will be made available in a variety of colours, for example the colour of a setting's uniform or logo. The IRIS bands are equipped with two settings alone: record and play. Unlike intricate smartwatches, the band provides a simpler and intuitive interface for practitioners. By pressing record on the band, observations and interactions can be captured in real time to be analysed later and which makes observations easier and offers more depth to children's learning and abilities.

The IRIS Artificial Intelligence Software allows recordings that are captured on the observation bands which are sent via Wi-Fi and Bluetooth connection, to be transcribed into word document, through speech recognition and natural language processing. Each Child will have an individual learning profile which considers their name, age, developmental journey, and any additional learning needs they have. Once a Child's name is spoken in the recording, it will automatically be placed into their profile, declaring activities, emotions and interactions encountered. Through research of developmental psychology and educational research, the AI software will be trained to generate recommendations of specific targets, areas of focus and activities that are tailored to individual requirements to develop, based on their engagement to play. The AI format of the software will also be trained to devise a map of the developmental pathways, outlined in the Curriculum for Non-maintained settings (2022), that can detect key words from observation recordings and be placed under the correct pathway, for organisation of targets for specific areas and recommendations of activities to support the child's learning based on the child's interests.

Another benefit of the IRIS AI software is the support of professional development and reflective practice. The recording of the situation in the learning environment and the interactions shared between practitioners and Children can allow a thorough analysis of their methods of communication to support learning, and how their practice and the environment is capturing their curiosity and enhancing their play. This allows practitioners to respond to observations by determining further planning of the environment and enriching experiences that the IRIS AI software offers. A weakness of this would be that practitioners would be unable to evaluate the visual environment and the non-verbal play cues that are occurring. When comparing with a video format of observation, however, the sound quality of audio recording is stronger than video captures, where in a noisy classroom environment, this option was preferred for this product, and with practitioner practice and improvement of its use will be able to accurately describe and narrate the unspoken events and visuals.

Marketing and Advertising

The investment would also contribute to the marketing and advertising of the IRIS Software on digital marketing platforms related to the product. TikTok for business (2024) is a valuable platform for developing brands in many topics and sectors, education included. Videos can be shared, providing a tutorial in how to utilise the

the IRIS observation band and software effectively, and to highlight its benefits. Practitioners who browse through Tiktok for inspiration for their early years organisation will encounter the advertising on this brand in a category of related products to videos they are interested in, making it targeted advertising. An aim is also being made to form partnerships with early years blogs, such as Early Years Staffroom Blogs (2024) and Early Years Wales (2020), which are platforms for advertising that will deliver related brands to the target audience, such as setting leaders, and practitioners. Partnerships such as these will encourage referral traffic to the IRIS company website, where they can sign up to the monthly subscription, download the software safely and order the wristbands in the chosen colour to their setting. (Haenlein et al, 2020, Jaipong, 2023, Novita et al, 2022). The profit received from the monthly subscriptions of the software and the bulk sales of wristbands for settings will be further invested to expanding the business internationally and adjusting the AI software to develop child profiles based on the languages and curricula of their nations.

Section 2: Research (1966 Words).

Role of the Adult.

Devi et al (2021), Harris (2016), Dominey (2021) and Mohan et al (2022) explore imaginative play and how the patterns in creative exploration and pretence contributes to a child's holistic development in several factors, such as the development of cognitive processes, social and emotional growth. Article 29 of the UNCRC (1989) states that education should be focussed on the personality, talents, and abilities of the unique child. Froebel explored how gifts and occupations enhance creativity and imaginative play through the endless possibilities that they possess. Through Froebel's gifts and occupations theory, play such as this where children can offer an accurate reflection of their personality, strengths, and abilities, and provides a rich insight into children's holistic development (Bosah et al, 2015, Sillanpaa et al, 2022). Communication is enhanced through a rich dialogue with adults, storytelling and role playing, where exploration is enhanced through methods of abstract thinking from the endless possibilities that play offers. (Hoskins and Smedley, 2019) How play and bodies are constructively manipulated to support the occupations of play enhances physical development, where the belonging and well-being developmental pathways are supported through co-operation, perspective taking, exploring social connections and interaction with adults and peers (Bradbury and Swailes, 2022, Bruce, 2018, Daly and Beloglovsky, 2020 and Tovey, 2016). These narratives can then be recorded on to the IRIS observation band and sent directly to the artificial intelligence software, allowing rich, uninterrupted interactions with children and can offer a cross-curricular approach to learning. Welsh Government (2022) advises that uninterrupted interactions with children allows the practitioner to fully understand the child's level of development, what captures their curiosity and how to plan the environment to cater to individual children's requirements to develop, making it a child-centred practice.

Piaget's approach explores how children's continuous conceptualisation of their world changes as they age and can be observed through recording and monitoring changes in their schematic behaviours towards play and their environment, and how this can motivate practitioners to continuously extend learning and offer a range of materials and methods of play to support children's schemas and interests. Vygotsky valued the significance of adult-child interactions and children's interactions with peers, where strong learning and problem-solving skills are attained, through play which nurtures Children's imagination and creativity. Children demonstrate how they conceptualise the world through imaginative processes and learn through modelling the behaviours of adults and their peers (Aubrey and Riley, 2022 and Conkbayir and Pascal, 2014). Hoffmann and Russ (2016) believe through following the child's direction with their fascinations and engagement to play, learning can be scaffolded through modelling exploration and curiosity and expanding the capacity to imagine hypothetical scenarios and the endless possibilities that play can offer. Pyle and Bigelow (2015) and Vitiello et al (2018) endorse interactions between adults and children to support emotional self-regulation, which is enhanced through expression of imaginative play, and supports the well-being developmental pathway of the curriculum for non-maintained settings (2022). This can develop language by utilising skilled knowledge of open-ended questions that invites answers of complexity, whilst advocating child-directed play (Pyle and Bigelow, 2015 and Wasik et al, 2017). Adults who enhance collaboration with Children to blend their perspectives offers a depth to creative narratives (Bowlby, 2016).

What the IRIS Observational Band and IRIS AI Software will aim to do is to capture an audio recording of an event in play, such as imaginative play, and will automatically transcribe and be categorised into the developmental pathways described in the Curriculum for Non-Maintained Settings (2022) to provide a reflection of the Child's developmental progression, how the child has behaved towards play, and will generate targets and suggestions for activities based on what motivates the Child to learn (Su and Zhong, 2022).

McInnes et al (2013) highlights a challenge, where if an adult is present, there is a decreased likelihood that a child will perceive an activity as a playful experience. Moreno (2016) agrees that Children develop life skills, such as valuable peer teamwork, negotiation, self-advocacy and resolving conflicts through play, and develop these skills more effectively without the presence of an adult. Conkbayir and Pascal (2014) discusses how children require time to explore and discover the environment to formulate their own play habits and find what interests them independently and freely to enhance full creativity. This may present an issue when using the IRIS observation band, where a practitioner needs to be in proximity with the child's play to receive an accurate recording of the interactions encountered. The skill of practitioners to visualise play through the eyes of a child, to understand when to be silent when children are interacting with others and when to contribute open-ended questions and discussions to the play and finding the right balance between adult participation and child's unassisted play is what can overcome this challenge (Fisher, 2016, Waters-Davies, 2022, McInnes et al, 2013).

The IRIS AI Software.

Ebifakumor (2022) suggests the significance of adopting artificial intelligence in academic and administrative tasks, that offers an abundance of functions and removes the complexity of work. Pyle and Bigelow (2015) explore a limitation that practitioners are time-constricted to implement high quality, play-pedagogies into practice. Department for Education (2023) explore the opportunities that Artificial Intelligence offers that are beneficial to the education sector by promptly analysing and structuring text and utilising audio to generate text on a digital document. This can reduce the workload of administrative duties for practitioners and can allow more valuable time to be spent on reflection of how their practice, resources and the environment are supporting children's individual requirements to develop (Arthur et al, 2021). A limitation of artificial intelligence is where words spoken in audio can be transcribed inaccurately into text, and therefore thorough investigation needs to be made to ensure there are no typing errors in children's personal files (Gridlex, no date). Betriana (2021), Ghandi et al (2023), Vasquez et al (2023) and Waleed et al (2023) believe to deliver efficient care and to develop a prompt understanding of a child's developmental progression, artificial intelligence possesses an abundance of valuable attributes that improve the amount of administrative work for the practitioner, allowing more time to make decisions on planning the environment to support targets of next steps for Children to develop (Reinhart et al, 2024). According to Asai (2020) and Ebifakumor (2022), there is a growing concern that artificial intelligence would continue to evolve to a point where it would decrease the number of jobs available for people. It is argued however, the demand for practitioners in early years settings with skilled expertise in building positive relationships with Children to extend their learning, alongside operating the effective use of the artificial intelligence.

A potential threat that practitioners face when carrying personal information regarding a child on a device on the wrist is breaches in data protection and confidentiality. According to the Data Protection Act 2018, a breach of the confidentiality of information entails personal data being made accessible to the public domain. The Information Commissioner's Office (2023) state the significance of secure storage of data, particularly the sensitive data of children, such as their name and their learning needs. The properties of IRIS software's aim to address this is the immediate transcription of data from the observational band, for the data to be removed automatically in the process, which promotes safe storage of data. Data Protection Act 2018 and Software AG (2024) highlights the significance of encrypting data digitally in a password protected software for the safe storage of data.

The IRIS Observation Band: Audio Vs Video.

Cohen, Manion and Morrison (2017) Highlights an advantage of audio recording of observations, that practitioners can select which method of participation and can participate naturally in the observation process once the record button is pressed on the IRIS observation band, without the requirement to note take by hand or operate a camera for video recording. According to Langston (2019), Lindon and Trodd (2016) and Pendrey (2022), the focus on the verbal communication and narratives allows practitioners to analyse the enhanced recall and detail of interactions, behaviours and the classroom environment, through the playback and review of the audio

recording, offers a depth to children's language capacity and cognitive functions and demonstrates the appropriate responses to Children's needs.

Through evidence-based practice and reviewing children's engagement to learning that the IRIS observation band and AI Software offers, practitioners can learn from the level of intrinsic motivation of children towards the play that fosters creativity and interactions encountered, and improve the quality of their communication techniques and the environment to enhance the development of individual children in their care (Zwozdiak-Myers, 2018, Williams, 2022, Bradbury and Swailes, 2022).

Borchers and Badermann (2023) values the audio recording method of observation, where devices such as the IRIS observation band which appears like a watch around the wrist, which is a less intrusive method and encourages more natural behaviour and confidence in Children. Video methods of observation removes the distraction from play, when comparing with camera devices required to capture video observations. D'apice et al (2019) states an advantage of audio recording provides an in-depth reflection of complex relationships between the environment of the early years setting, and how this impacts child development.

A weakness of the audio recording of observations would be that they do not provide an accurate reflection of the visual events of the environment. Fisher (2016) and New Childcare (no date) state that young children utilise more non-verbal methods of communication, while their language is developing. Asan and Montague (2015) suggest video recording of observations provide an accurate reflection of the visible indoor and outdoor learning environment, and how this impacts child behaviour and engagement towards play through analysis of body movement and facial expressions. Waller and Davis (2015) agree that videos capture visual reflections of the evolution of a child's learning, however, argues that audio recordings of observations motivate practitioners to enhance the narrative through describing the child's actions and encouraging open-ended questions to extend critical thinking abilities.

Another limitation to be addressed concerning this would be the difficulty of identifying the individual voices of children in group activities. Domoff et al (2018) believes audio recording of observations can be more effective in transcribing data from speech to text than video as possesses a stronger sound quality. Another benefit of adult participation in the interaction process is using the child's name, so that the IRIS AI software can transcribe the data into individual profiles.

Ethical Research Involving Children (no date) suggests an ethical consideration that applies to this product is informed consent. Children and their families need to be informed that this new strategy of undertaking observation is being carried out, and an explicit description of the use of this new product in the setting and how this will benefit their development and the risks involved (NSPCC, 2024). Intelligent Video Solutions (2023) advise that children as participants will be more exposed and identifiable in a video recording than an audio recorded method of observation. Williams et al (2013) believe that parents or caregivers have a more negative attitude to video recording that exposes their children to be more identifiable. Audio recordings do not capture visual data, and therefore offers a higher level of privacy protection for children and does not raise as many ethical considerations as video

recordings. This generates a more positive attitude from parents to provide consent for their children to be recorded.

In conclusion: IRIS AI Software offers a wide range of possibilities for the early years sector, considering how it supports child development through adopting the Welsh Curriculum, reduces the demand for administrative workload for practitioners, whilst nurturing the valuable role of the adult as a participant in children's play. Through the audio-based method of observation that was selected for this product, practitioners can attain a fuller reflection of a Child's abilities and through the AI software that generates targets for next steps and fosters positive learning outcomes as they grow.