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Methodological approach for the reflection process

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DIGITAL TA
Teacher Academy supporting transition

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1.1 Introduction

This report provides a review of the literature on reflective practice, outlining common models and approaches to reflective practice. The authors also consider some of the challenges practitioners may experience as they try to support and engage with reflective practice. The approaches emerging from the literature for use with online digital reflective processes are also considered. The final section, drawing on the international literature review, proposes a process for reflective practice for Digital TA. A brief rationale for the proposed process, and guiding principles, are also provided.

1.2 Defining Reflection and Reflective Practice

An intimate knowledge of the self is highly valued in contemporary society, particularly in professional fields where experiential learning is foundational to professional development. This understanding of one's thoughts and actions is achieved through self-reflection, which in health, nursing and social services (Howatson-Jones, 2016; Lilienfeld and Basterfield, 2020; Redmond, 2017), education (Horton-Deutsch and Sherwood, 2017) and initial teacher education (Mathew, Mathew and Peechattu, 2017; Djoub, 2017), is propagated through a ubiquitous approach to learning termed *reflective practice* (Lilienfeld and Basterfield, 2020).

Though the 'how', 'when' and 'why' may differ throughout disciplines, reflective practice is an essential domain for professional competency and yet, it remains notoriously difficult to unanimously define. Despite interdisciplinary approaches to reflection being based on the same, well-defined theoretical sources, predominantly those of Dewey (Dewey, 1997; Dewey, 1986) and Schön (Schön, 1983), the different perceived definitions of reflective practice serve to create discourse in both research (Rodgers, 2002; in Clarà, 2015) and teaching practice (Akbari, 2007; Marcos, Sanchez and Tillema, 2011; in Clarà, 2015) in the field of education.

It is argued that *reflection* is descriptive and not prescriptive; a state of mind engaged in assigning coherence to experiences, which constitutes an ongoing component of practice (Bolton, 2009; Clarà, 2015). According to Dewey, the core principle of reflective thought lies in systematically examining experiences and ideas rigorously, responsibly and honestly (Dewey, 1933; in Rodgers, 2002). Schön described the process of 'reflection *in action*', referring to the ability of professionals to consciously examine what they are doing and why, as they do it, while 'reflection *on action*' refers to reflection that happens after an event (Schön, 1983).

Since Dewey (1933) and Schön (1983), contemporary authors have defined reflection in a variety of ways; as conscious thought informed by experiential learning, involving criticality, problem solving and evaluation leading to change (Anderson, 2020), as a way of understanding one's life and actions (Fook, 2015), engaging in "attentive, critical, exploratory and iterative interactions" with thoughts, actions and the self with a goal of change (Nguyen *et al.*, 2014) and enabling learning in and from direct experiences (Saric and Steh, 2017). Similarly, reflective practice can be defined as a way of "practising, emphasising processes of professional consideration" before, during and after professional actions (Ng *et al.*, 2015), providing strategies to practitioners to examine how they relate to themselves, home, work and culture through experiential learning (Bolton, 2009), and

perhaps most generally, as a means to "make tacit knowledge explicit" (Ravanal Moreno *et al.*, 2021). Tripp and Rich (2012) consider reflective practice to be "a self-critical, investigative process wherein teachers consider the effect of their pedagogical decisions on their situated practice with the aim of improving those practices" (Tripp and Rich, 2012).

As such, within education, reflective practice may be best understood as a context-dependant, cyclical, self-analytical and self-critical process whereby educators continually examine, investigate, and analyse each dimension of tacit pedagogical actions and decisions, to translate experiences into constructive or reformative changes in their professional practice. Most importantly, reflective practice is a contextual, social process (Saric and Steh, 2017), the results of which are entirely non-predictive (Tessema, 2008). Reflective practices can be broken down into dialogic reflections occurring through discourse with the self (Brown and Sawyer, 2016), descriptive reflections (Smith and Hatton, 1993), and critical reflections examining the context, content, thought process and premise of experiences (Mezirow, 1998).

Conversely, holistic and intuitive approaches to reflection are founded epistemologically in phenomenology, existentialism and gestaltism, which facilitate the exposition of personal perplexities and paradoxes to make aware the influence of implicit knowledge (Saric and Steh, 2017). These non-linguistic approaches often garner stronger personal investment than systematic methods, but require additional psychological security and time for expression (Korthagen, 2001). Furthermore, the intimate nature of these reflections is often side-lined by the summative importance of 'academic' performance in pre-service teachers (PSTs,) and by the expectation of immediate solutions for in-service teachers (ISTs) (Saric and Steh, 2017).

The issue of '*high-stakes reflection*' (Ross, 2011) is reflection which is summatively assessed for progression, in the case of PSTs or is used as a gatekeeper to the membership of a particular profession in the case of ISTs. McGarr and Ó'Gallchóir (2020) explore the idea that PSTs simultaneously use self-criticism and self-praise to "*performance manage*" (McGarr and Ó Gallchóir, 2020), noting that students are '*audience-aware*' (Hobbs, 2007; Ross, 2014) and engage in continuous '*sunshining*' (Thomas and Liu, 2012) throughout reflection. Reflections demanding honesty and openness often provoke hostile, strategic responses from students (Hobbs, 2007; in McGarr and Ó Gallchóir, 2020), as reflections are inherently restricted by their academic nature (Ross, 2014).

1.3 Reflective Practice Models and Processes

Although they are largely rooted in the same twentieth-century theory of Dewey (1933) and Schön (1983), reflective practice models do evolve over time. Supplementary to models traditionally used in teacher education and education are those used in healthcare (medicine, nursing, midwifery, psychology, social care, etc.). In examining critical reflection, Mezirow (1998) identifies 3 subsets through which the presuppositions of prior knowledge influence practice. Content reflection involves the description of "disorienting dilemmas", examining how one feels, thinks or perceives a situation (Mezirow, 1990). Process reflection looks at the way in which an individual supposes solutions and how this can affect the

situation. In premise reflection, one reflects at a much deeper level on the situation itself, developing an awareness of why we act and think as we do in an attempt to form an understanding of one's own internal biases. This cycle leads to what Mezirow (1981) termed *transformative learning*, the transformation of perspective through psychological, convictional and behavioural dimensions (Mezirow, 1981).

The following Table 1.1 provides brief overviews of reflective practice models identified in a systematic search of interdisciplinary literature. Regardless of the model used, critical reflection still remains a highly personal process, requiring time and a safe space to facilitate a continuous journey through professional development. It is also noted that this implies there are a series of steps that must be sequentially followed to achieve critical reflection. Reflection does not always start at the beginning, nor is it something that is achieved through following a standardised recipe. The 'difficulty' of each reflective practice model is outlined tentatively. Models found across disciplines which are routinely used with participants new to the reflective process are labelled as *beginner*. These models often provide a series of digestible steps and outcomes that reassure novel practitioners but may narrow the scope of reflection. *Intermediate* models offer more freedom to participants through scaffolding the process of reflection, but still rely on sequential ordering. *Advanced* models outline a cyclical process with no predeterminable starting point or outcomes, providing an unburdened environment in which to reflect upon internal ways of being. However, this lack of specified direction can discomfort those new to reflective practice. These models are typically found in healthcare-related disciplines but are often subject to potent operationalization.

Table 1.1 – A Summary of Reflective Models and Processes, 1970-2015.

Year	Model	Summary	Difficulty
1970	Borton model	Borton's Development Framework model is based on 3 questions which translate sense-making or acting into experiencing the world, making the participant more aware of how they function. - *What?* for sensing, looks at the actual and the intended effect of actions. - *So What?* tries to transform information from the *What?* into meaningful patterns in the present moment. - *Now What?* is asked in order to generate decisions on how to act and how to reapply these in the future.	Beginner
1977	Van Manen's *Three levels of reflection*	Van Manen identified three 'ways of knowing' when engaging in reflective practice: Technical, Deliberative, and Critical rationality. Technical rationality ignores social context to deliver curriculum objectives. Deliberative rationality explores and clarifies the values of these contexts. Critical rationality, the highest level, critiques the dominant institutions and repressive forms of authority, fostering long-term shifts in reflexivity, personal understandings and social agency (Dervent, 2015).	Intermediate

1981	Mezirow's model of *Transformative Learning*	This model combines instrumental or task-focused learning which examines cause-and-effect relationships, and communicative learning to allow the individual to critically evaluate their own assumptions. This model emphasises the importance of significant learning and a transformation in the self from reflective practice (Kitchenham, 2008).	Beginner
1983	Schön model	Schön's model proposes reflection *in action* which occurs during an activity/event, and reflection *on action* which occurs afterwards. This process challenges individuals to become aware of their own tacit and implicit knowledge to learn from experience (Cameron, 2009).	Intermediate
1983	Boyd & Fales model	Boyd and Fales identify "experience" as the trigger for reflection and examine transformative learning to facilitate deep personal change. This personal change often relates to a paradigm shift one's perception of the self in the world (Nguyen *et al.*, 2014).	Intermediate
1984	Kolb's *Reflective Cycle*	This cyclical model operates on 2 levels, involving 4 stages of learning and 4 learning styles. This is termed Kolb's experiential learning theory, as the learning is achieved through experience. The 4 stages of learning in this model refer to examining the concrete experience (of an event), forming observations and reflections, forming generalizations and abstract concepts and active experimentation. The final stage of learning tests the implications of the concepts and generalizations formulated and forms the basis for a new reflective cycle to begin. Participants examine, analyse and systematically evaluate their experiences to garner new insights into ways of being (Vince, 1998).	Beginner
1988	Gibbs' *Reflective Cycle*	This model builds on Kolb's Reflective Cycle as a 6-stage process. These stages involve a description of the event, examining emotional context, evaluating and making judgements, analysing the event, drawing conclusions and formulating an action plan. Through this cycle, participants translate experiences, knowledge and novel insights into action after an event has occurred. This model is typically used for debriefing practice, specifically to encourage sustained cycles of reflection throughout professional practice (Husebø, O'Regan and Nestel, 2015).	Beginner

1991	Gore and Zeichner	Gore and Zeichner propose 4 different varieties of reflective practice, each providing a new lens through which to reflect: academic, social efficacy, developmental and social reconstructionist. They conceptualize critical reflection to be the union between these 4 variables. The academic version encourages educators to examine their pedagogical skills and how they make content accessible to students. The social efficacy version examines what is most effective through evidence-based practice and research. The developmental version frames the relation between students' developmental ages and capabilities and the educator's practice. Finally, the reconstructionist version broadens the scope of reflection to include the social and political contexts and injustices of schooling to foster greater justice and equity in the classroom (Sellars, 2017).	Advanced
1994	Driscoll model	Driscoll's model expands the work of Borton (1970) into a 7-stage process occurring after an event. An event occurs, and *What?* asks for a description of the event. A reflection is formed based on this first question. *So What?* looks to discover new learning arising from the initial reflection and analysing the event. A new reflection is formed based on this. *Now What?* combines the first 4 stages to search for new learning and create a final reflection. Finally, an action plan is drawn up based on the previous 6 stages (O'Driscoll and Beehr, 1994).	Beginner
1995	Johns' Model for Structured Reflection	The Model for Structured Reflection (MSR) is underpinned by a theory of social constructionism (that notions of reality arise from collaborative consensus) by taking into account how emotions, intentions, beliefs, values and the context of the environment in which an event has occurred impacts the event itself. It is broken into 4 stages which can be engaged with in any order: a description of the event prompted by 'reflexive cues', a reflection on the event prompted by questions, an investigation into the factors influencing the event, and identifying pathways for future improvements. Once these are complete, empirical, ethical, moral and aesthetic learning can be translated from the reflection into improving practice. This model can be used both individually and in group settings but was developed for use in nursing education. A modified version of this model can be used with PST and IST participants (Cox, 2005).	Advanced
1995	Atkins & Murphy model	This is a 5-stage cyclical model which urges practitioners to assess underlying assumptions and	Advanced

		biases to engage in a deeper reflection. A description of the situation to be reflected upon prompts participants to analyse related feelings and knowledge to identify and challenge assumptions. Knowledge is evaluated based on its relevancy to the situation, and any learning arising from the situation is identified. Finally, awareness is brought to any discomfort, action or experiences relating to the situation. This draws attention to 'negative' events or situations to reflect upon and promotes continuous reflective practice (Atkins and Murphy, 1993).	
1997	Valli model	Valli groups reflection into 5 overarching themes of content and quality: technical, personalistic, reflection in & on action, deliberative and critical. *Technical* reflection systematically examines evidence-based pedagogical instruction to match professional practice to external guidelines. *Personalistic* reflection evaluates personal growth and teacher-student relationships to holistically develop a trust in the voice of the self and others. *Reflection in and on action* focuses reflection on personal pedagogies to recognize uniqueness. *Deliberative* reflection examines the concerns of teaching, weighing differing viewpoints and theories of research to develop an understanding of how and why certain decisions are made. *Critical* reflection concerns the intersection of social, moral and political dimensions of schooling to judge the purposes of schooling within the context of social justice and equity (Valli, 1997).	Intermediate
2000	Yost, Sentner and Forlenza-Bailey	Yost, Sentner and Forlenza-Bailey outline 2 types of reflection. *Surface level* reflection is 'guided by authority and experience' and is highly structured. The second type is a deeper level of *critical reflection*. At the deeper level of reflection, participants use critical reflection techniques to develop a conscious awareness of the situation. Only then can one make careful considerations of the consequences within the situation, which ultimately results in cognitive change (Yost, Sentner and Forlenza-Bailey, 2000).	Advanced
2001 and 2006	Korthangen's *Onion model*	The Onion Model developed by Korthangen proposes 6 levels at which one can reflect. Starting at the outermost level, reflection on the *environment* in which an event occurs interplays with *behaviours*, both innate and those arising from an event. Following this, *competencies* examine the pedagogical ability of the educator and the confidence they hold in their abilities. This influences	Intermediate

		the next level of *beliefs*, and the following level pertaining to professional and personal *identity*. At the core level, *mission* examines the 'why?' underlying one's path to becoming an educator. This allows participants to continuously reflect in increasingly deep ways, from analysing, evaluating and changing their practice to challenging the moral and ethical issues that arise in schooling (Korthagen and Vasalos, 2005).	
2001	Rolfe, *et al.* Framework for Reflexive Learning	The Framework for Reflexive Learning focuses predominantly on the practice of reflexivity within healthcare disciplines. Based on Borton's (1970) developmental model, it asks the same *'What?'*, *'So What?'* and *'Now What?'* questions, however each question is expanded into three levels of deepening reflection. The levels used to achieve this are descriptive, theoretical and action oriented, allowing for reflection to progress from a surface level to deeper, critical authenticity (Rolfe, 2002).	Advanced
2005	Brookfield model	Brookfield's model of reflection assesses an event or situation through 4 different perspectives or lens: autobiographical (the self), the student's perspective, colleague's perspectives and the perspectives in theoretical literature. This model is useful for personal development and lends itself to developing self-directed learning practices, however it only engages participants in a surface level reflection. Various modifications of this model exist (Brookfield, 2017).	Beginner
2013	The ERA cycle (Jasper)	The Experience-Reflection-Action (ERA) Cycle allows participants to build their knowledge repertoire through learning from experience after an event occurs. There is a key focus on the action element of this cycle, which directs learning gained through reflection towards application to a new experience or situation where a change in practice is beneficial (Jasper, 2003).	Beginner
2013	Zeichner and Liston	Zeichner and Liston divide reflective practice into 4 different perspectives through which reflection can occur. The *academic* or *conservative* perspective of reflection is concerned with the content and skills of the educator. The *developmentalist* and *pragmatic* and *progressive* perspective to reflection stresses the needs of the student. The *social justice* perspective reflects with the systemic difficulties and oppressive social forces which contextualise schooling through dimensions such as race, gender, social class, etc. Their final perspective, *spiritual tradition*, focuses	Intermediate

		reflection on human existence in an attempt to apply meaning to life (Zeichner and Liston, 2013).	
X	Connect, New, Question and Reflect (CNQ + R)	The Connect, New and Question model is widely used in initial teacher education programmes, with the addition of a '+ Reflection' component. This model asks participants to *connect* to identify prior knowledge or experiences which are useful to the context. Participants are then asked to identify something *new* and something they wish to *question* in the context. This can be a piece of information, an action, the specific environment, etc. Participants are then asked to generally reflect on the situation or event, using the experiential learning gained from the previous three stages. This model is particularly useful in introducing participants to reflective practice.	Beginner
X	Video-Based Reflection	This model utilises lesson recordings to facilitate educators to view and reflect on their practice, without disturbing a classroom environment. Although several versions of this model exist, it often begins with a PST or IST recording a lesson. The recording is viewed once to familiarize participants with content/focus, then a second time to truly begin the reflective process which may engage steps similar to those used in existing models, such as Gibbs' (1988). These reflections often use classroom management or similar themes as a focus/prompt for reflection, but participants can be prompted engage at a deeper level through scaffolding. This process may be done individually or in groups as the reflective process progresses. There is sufficient room to develop Video-Based Reflection into dedicated, differentiated models to suit a variety of contexts and the needs of beginner, intermediate and advanced reflective practitioners.	Beginner

1.4 Reflective Practice in a Technical World

The following conclusions can be drawn from the literature regarding reflective practice within an online forum:

Reflective Practice Models: The work of Gibbs (1988), Kolb (1984) and Mezirow (1981) dominate in the integration of reflective practice in an online space however, none of these models have been developed specifically for to support online reflection. Failing to consider the unique context of online or virtual-based reflective practice may result in significant integration difficulties.

Appropriate Technology Use:

- *Virtual Reality* (VR) approaches to reflection and education sound promising, providing an immersive space to collaborate with peers and mentors (Chien, Hwang and Jong, 2020), thus offering participants the unique position to be immersed in complex scenarios without the risks typically associated with classroom scenario-based reflection. However, cost and accessibility are overwhelming barriers to participation which have not yet been overcome (Elmqaddem, 2019). The strain on participants' eyes after using virtual reality headsets, in addition to the impact of motion sickness on some participants' wellbeing also poses a significant barrier to this approach (Fuchs, 2017). There is a delicate balance which must be reached when it comes to combining reflective practice with technology. For these reasons, the authors of this report have decided to exclude literature focusing on VR-reliant approaches.

- *App-based* approaches to reflective practice are perhaps the most accessible, showing positive developments in reflective practice and continuous engagement with reflective practice (Petko *et al.*, 2022). Positive developments in self-directed learning, hedonic motivation, habit, behavioural intention and performance expectancy for primary and post-primary-level PSTs have been attributed to the use of app-based e-portfolios (Petko *et al.*, 2022). However, it is noted that such approaches require a high developmental input and testing, control, moderation, and adequate funding.

- *Video-based* approaches to reflection are supported by a growing body of evidence which argues that this mode allows for greater collaboration between peers, mentors and teacher-educators, and fosters positive developments in participant self-efficacy and confidence (Alazmi, 2023; Suchman and Trigg, 2020; Corbin Frazier and Eick, 2015). This model requires access to video-recording equipment in addition to a dedicated space in which collaborative reflective practice can occur.

- *Online blog-based* approaches to reflection have been in use for a significantly longer time in healthcare-related fields, providing a strong base of literature to draw upon. They offer highly personalized spaces in which reflection can occur (Jones and Ryan, 2014), facilitating the development of self-regulated learning skills (Fidan and Debbağ, 2018) and fostering collegiality between participants. However, the use of blogs for reflective practice requires a moderation, scaffolding of the reflection and mentoring to keep participants both motivated and on-track (Nambiar and Thang, 2016; Jones and Ryan, 2014).

- *Simulations* and *Storytelling:* The simulation of classroom experiences through virtual environments proves particularly useful, especially in cases where participants are restricted to online platforms, such as during the Covid-19 pandemic. Virtual simulations are useful for exploring tricky situations and can provide the construction of ideal cases to explore issues relating to social injustices (Manburg *et al.*, 2017). This can also link with digital storytelling, which facilitates reflecting on difficult situations and experiences within a safe, secure environment (Coggin *et al.*, 2019). These approaches, like blog-based reflections, require mentoring and 'hand-holding' initially. Without adequate support and scaffolding throughout the reflective process, participants may experience detachment from the situation and context in question

(Manburg *et al.*, 2017) and narrowing of the reflective practice experience (McGarr, 2021).

Multimedia: The need for *multimedia* capabilities in online spaces is reflected throughout the literature (Petko *et al.*, 2022; Jones and Ryan, 2014; Fidan and Debbağ, 2018; Farr and Riordan, 2015), as such approaches allow participants multiple modes through which they can represent their learning, experiences and actions. This links to the Representation principle of Universal Design for Learning (UDL).

Supporting Participants and Facilitators: All approaches to online reflective practice require an onboarding phase for *both* facilitators and participants, including training, familiarization, motivation and reassurance. Additionally, it is recommended that *mentors* are assigned to participants or groups of participants for the duration of the reflective process. The individualised nature of many online approaches to reflective practice can lead to the isolation of participants, but an over-reliance on the comforts of inclusion and social cohesion can be detrimental to the reflective process.

1.5 The Challenges of Supporting Reflective Practice

Despite the long-standing emphasis on reflective practice in teacher education and professionalism (Schön, 1983; Clift, Houston and Pugach, 1990; Merryfield, 1993; Bolton, 2010; Djoub, 2017), supporting this practice is still faced with challenges. Beauchamp identifies obstacles to supporting reflective practice in the shifting definitions and epistemological approaches to reflection, the narrowing of reflection, the ethics of reflection, structural limitations, and the continued questioning of the value reflective practice holds (Beauchamp, 2015). Beauchamp notes that the meaning of reflection and in particular, critical reflection, "escapes complete understanding" by both practitioners and promoters (Beauchamp, 2015). Differing perceptions amongst pre-service teachers (PSTs), in-service teachers (ISTs) and teacher educators on what reflective practice is, what it looks like and how it's 'done' serve to create varying discourse and confusion. This theory-practice gap acts as a significant barrier for educators in developing methodologies and their praxis of reflection. Collin *et al* note that pairing the lack of a clear concept with the deficit in empirical studies on reflective practice hinders its operationalisation in teacher education (Collin, Karsenti and Komis, 2013).

1.5.1 Various Approaches

From these unsteady perceptions of the concept of reflection, comes great variance in the ways that one can supposedly reflect. Saric and Steh (2017) identify two overarching approaches to reflective practice; those that are systematic or analytically oriented, and those that are holistic or intuitively oriented. Systematic or analytical approaches are typified by hierarchical structures or modes of observation, objectivity and a separation from person or judgement and can range in effect from superficial to deep, critical reflections (Saric and Steh, 2017). The over-structurisation of reflection, born from the misinterpretation of Dewey's (1993) *phases*, creates the illusion that reflection is a sequentially consecutive, linear process (Clarà, 2015). This narrows the scope of reflection, confining the process to reductive, superficial steps.

Conversely, holistic and intuitive approaches to reflection are founded epistemologically in phenomenology, existentialism and gestaltism, which facilitate the exposition of personal perplexities and paradoxes to make aware the influence of implicit knowledge (Saric and Steh, 2017). These non-linguistic approaches often garner stronger personal investment than systematic methods, but require additional psychological security and time for expression (Korthagen, 2001). Furthermore, the intimate nature of these reflections is often side-lined by the summative importance of 'academic' performance in PSTs, and by the expectation of immediate solutions for ISTs (Saric and Steh, 2017).

1.5.2 The Potential of Reflection to Impact Practice: Values and outcomes

With the operationalization of systematic approaches, completion of the 'steps' involved in reflection can be misattributed through assessment to the development of one's reflective practice at a deep level. The investment and individuality of holistic approaches can't be appropriately appraised by the assessments used in teacher education. How definable the good outcomes from reflective practice are, and how truly deep reflection can be quantified is a dilemma across disciplines. Health education (Mann, Gordon and MacLeod, 2009; Hays and Gay, 2011) and clinical psychology (Lilienfeld and Basterfield, 2020) in particular outline this challenge, defaulting to itemised checklists wherein the value of critical reflection is lost entirely. Similar point-based assessments of reflection used in teacher education run the risk of becoming equally reductive, narrowing both the scope and effect of reflective practice.

The different approaches to reflection all attempt to achieve the same coveted outcome, a critically-reflective practitioner; however, their empirical effectiveness often fluctuates or is unknown entirely (Collin, Karsenti and Komis, 2013; Roessger, 2014; Dubé and Ducharme, 2015). Collin *et al* argue that reflective practice in teacher education is exclusively based on the works of Dewey and Schön, and regrettably so due to the absence of influence held by any other theories and the misinterpretation of seminal works (Clarà, 2015). We are left with a multitude of equally prescriptive and contrasting approaches that fail to recognize the context-dependant, multifactorial and multidimensional ecology of reflection, and no robust means of measuring said reflection.

1.5.3 Are we really Reflecting? A look at the "Reflective Zombie"

Without routinely engaging in meaningful reflective practice, it is unlikely that educators will acknowledge or understand "the effects of their inspirations, motivations, expectations and experiences upon their practice and praxis" (Lubbe and Botha, 2020). The benefits of reflective practice have been long understood and commended academically, given the ever-growing emphasis on reflectiveness in teacher education globally. However, despite its cruciality, the practice remains largely hidden behind theoretical instruction. Saric and Steh argue that barriers in supporting deep, critical reflection occur at the individual level through teachers' personas and at the context level through which reflection is done (Saric and Steh, 2017).

Perhaps one of the most sinister issues faced in supporting reflective practice amongst PSTs and ISTs is the rise of the '*reflective zombie*' (De la Croix and Veen, 2018). Initially coined by De La Croix and Veen in relation to medical students, the reflective zombie refers to those who have been conditioned to follow models which operationally prescribe the steps of

thought instead of allowing one to engage in truly reflective behaviour (De la Croix and Veen, 2018). De La Croix and Veen argue that this issue stems from problems relating to paradigm, methods and epistemics, suggesting that "we are looking at reflection in the wrong way… using the wrong tools" (De la Croix and Veen, 2018). In teacher education, the quality and depth of critical reflection must be tangible for PSTs and measurable for the purpose of assessment. To explore this, let's think of reflective practice as the act of baking a cake.

Depending on the context and positionality of an individual, their perceptions of cake will differ, as will their interpretation of a prescribed recipe. While individual A follows the recipe and mindlessly mixes ingredients together in the prescribed amount, individual B takes time in the measuring, mixing and labour, engaging with every step of the recipe and investing their soul into said cake. However, both individuals will produce a standard but similar cake, with little recognition of the internal work of individual B. Simply put, no one will think, act, or react in exactly the same way, just as no one will bake an identical, measurable cake that is unanimously delicious; so how are we to effectively promote, prescribe and assess reflective practice? If reflective practice continues to be thought of as the act of baking a 'one-size-fits-all' cake, especially in teacher education, then how are we to differentiate between reflective zombies and truly authentic reflection?

To remedy these challenges, there must be a consensus on what truly deep critical reflection looks like. Reflective practice needs to be highly individualised and secure sufficient buy-in from participants, which requires tailored supports for both ISTs and PSTs. The use of dedicated mentors, effective mentor training, and mentor-mentee relationships built on trust are effective in supporting reflective practice (Schrempf *et al.*, 2022), as is the need for reflection to be given adequate time and space to individualize (Walkington, 2005; Makinster *et al.*, 2006; Mann and Walsh, 2017; Schrempf *et al.*, 2022).

1.6 Supporting Online Approaches to Reflective Practice

With the technification of schools being irreversibly accelerated by the COVID-19 pandemic, no longer are educator's pedagogical effects free from digitalization. There is a growing body of research supporting the technification of reflective practice, citing improvements in connecting theory to practice (Cross, Wolfenden and Adinolfi, 2022; Mettiäinen and Vähämaa, 2013), motivation and attitude (Manburg *et al.*, 2017), reflexivity and competence (Palacios *et al.*, 2022), and the benefits of online communities of practice (Burhan-Horasanlı and Ortaçtepe, 2016). However, research has also highlighted the difficulty in designing activities, models and platforms that achieve the desired outcomes of reflective practice (Beauchamp, 2015; McGarr, McCormack and Comerford, 2019). In addition, online reflections are stunted by issues surrounding technological and computer literacy (Lam, 2020; Shoffner, 2009), privacy concerns (Shoffner, 2009), grade influence (Garza and Smith, 2015), identity (Ross, 2011), and online honesty (Emery, Jackson and Herrick, 2021; McGarr and Ó Gallchóir, 2020).

1.6.1 Honestly, Who Needs Honesty These Days?

The issue of '*high-stakes reflection*' (Ross, 2011) is reflection which is summatively assessed for progression in the case of PSTs, or is used as a gatekeeper to the membership of a

particular profession in the case of ISTs. McGarr and Ó'Gallchóir (2020) explore the idea that PSTs simultaneously use self-criticism and self-praise to *"performance manage"* (McGarr and Ó Gallchóir, 2020), noting that students are *'audience-aware'* (Hobbs, 2007; Ross, 2014) and engage in continuous *'sunshining'* (Thomas and Liu, 2012) throughout reflection. Reflections demanding honesty and openness often provoke hostile, strategic responses from students (Hobbs, 2007; in McGarr and Ó Gallchóir, 2020), as reflections are inherently restricted by their academic nature (Ross, 2014).

As Ross (2011) argues, online approaches to reflection are often implemented with little consideration of the effects transitioning to an online space has on reflective practice. He notes that online reflective practices can risk normalizing the "surveillance of students' emotional and developmental expression", prompting the gurgitation of ritualistic and idealised confessions instead of critical reflections (Ross, 2011). He identifies six genres of mask through which high-stakes reflection persists: performance, disguise (of self-awareness rhetoric that is fundamentally prescriptive), protection (from voicing too personal or negative an experience), transformation (of the individual into a self-surveillant confession-booth), discipline (constraining voice to fit the reflection) and trace (the online storing of reflections as compulsory, unconsented memory) (Ross, 2011).

With the simplification and structurization of online approaches to reflection, the ease of moderation and assessment increases along with the pressure on PSTs to continuously critically reflect. The act of baking the *one-size-fits-all reflection cake* now risks becoming a 1984-eqsue doublethink nightmare for students.

Teacher Education Final Exam, Spring Semester 2042

Question 1: Please critically reflect on your socially and contextually-sensitive pedagogical experiences, but make sure you tick these exact boxes to proceed. Don't forget to be authentic, performative, individual and conforming! (100% Module Grade)

Equally, ISTs can be restricted in their honesty as they engage with online reflections. This is seen across professions, for example in the medical malpractice case of Bawa-Garba (2015), who kept reflective submissions in an e-portfolio that were later used as evidence in court. Research found that after the trial, medical profession trainees and medical graduates displayed disproportionate reluctance in submitting reflective work, especially when reflecting on negative experiences (Emery, Jackson and Herrick, 2021). Despite the severity of this case, the fear of repercussion when engaging in genuine reflection on negative experiences is a barrier to IST reflective practice, especially when reflecting through online approaches which may be catalogued, reviewed and scrutinized freely. Being open and receptive to critical or constructive feedback and mentorship is crucial to maintain professional integrity but remains markedly different to having one's professional competence besmirched without direction.

1.6.2. Considerations for Design and Development of an Online Reflective Practice Process.

The literature review identified a number of ways in which pre-service and in-service teachers can be supported to engage effectively in an online forum:

Consideration of mentoring and CPD requirements for all stakeholders: Whatever approach is taken, ISTs and PSTs need clear, adequate professional development and induction into the methodology of the online reflective process and how it may be assessed (Ross, 2014). This should ideally be spaced out over a number of weeks (Alazmi, 2023), such that participants can explore the online space individually, generate questions and feedback, and develop their personal confidence in reflective practice. Moderators, lecturers and/or mentors need adequate training and induction into the methodology of the online reflective process. ISTs and PSTs need adequate time, resources and support in order to critically reflect (Palacios *et al.*, 2022).

Personnal and Social Domain: Mentors help scaffold and support online reflective practice (Schrempf *et al.*, 2022). Social cohesion of peer groups and mentors is crucial for engagement (Palacios *et al.*, 2022), and group focus needs to be refined towards truly reflective practice (Jones and Ryan, 2014). Moderators are needed for online spaces.

Assessment of Reflective Practice: Reflections should not be assessed by summative means. During the initial phases of a novel online reflective practice approach, under no circumstances should the reflections generated be used as part of a summative grade for PSTs or as a requirement to maintain professional membership amongst ISTs (Ross, 2011). There should be emphasis on critical/constructive feedback in each case (Walsh and Mann, 2015), with direction provided to participants on additional relevant research that would benefit their practice. The social context of each participant must be taken into account, along with the notion that what is truly deep reflection for one, may be shower-thinking for another.

Online Environment Considerations:
- Multimedia-based artefacts for reflection should be supported to allow for more freedom and flexibility in expression (Petko *et al.*, 2022), reflective of UDL principles.
- Spaces for lecturer/moderator/mentor-led discussion, peer-led discussion and self-led discussion should be provided (Jones and Ryan, 2014), but agency in the reflective process is paramount (Ross, 2014).
- In self-led spaces, it must be ensured that the content of reflections will not be viewed, shared or assessed in any form without the express consent of participants (Ross, 2011).
- The online space must be a safe, secure one in order for participants to invest in honest critical reflection (McGarr and Ó Gallchóir, 2020).

1.7 Linking the literature review to the proposed reflective practice process

Six overarching, and oftentimes connected, principles guide the development of the reflective practice process proposed below. These principles emerged from and are informed by the research literature and reflective practice models (presented in Table 1).

The principles include a focus on experience and action, supported by a cyclical process; a focus on transformation and change; a focus on critical reflection; a focus on self, a focus on dialogical reflection and providing a process that is open, flexible and provides choice for the user. The reflective practice models, outlined in Table 1, informed the proposed process as outlined below. The six principles are as follows:

Principle 1: A Focus on a Cyclical Process

The proposed reflective process is framed, amongst other things, around a cyclical process that encourages pre-service and in-service teachers to draw on experience (what?), to consider what learning they can draw from other sources (peers, literature etc.) (so what?) and to consider what action can emerge from the reflective process (now what?). The process encourages users to acknowledge their learning from the cycle and to consider what other issues this raises for them through a constant cycle of inquiry. Having completed the reflective process cycle, users can reengage with it based on the (new) issues that have emerged as a result of the initial reflection. This approach supports the development of a view of reflection that is on-going, sustained and leads to further reflection. Users are also encouraged to engage in meta-reflection, by reflecting on their reflections[1] to see what further learning they can garner, regarding their beliefs and values, from their reflection. The following models, as outlined in Table 1, informed this principle: Borton (1970), Kolb (1984), Boyd and Fales (1983), Schon (1983), Driscoll (1994) and Rolfe et al., (2001).

The cyclical process supports pre-service and in-service teachers to link theory and practice. Collin et al. (2013) identified the on-going contestation of the theory/practice gap. This reflective practice process challenges this conceptualisation and rather argues that practice is theory and theory is practice. By linking to the original trigger or experiential aspect – the user can be supported to develop their understanding from both a theory and practice perspective. Saric and Steh's (2017) conceptualisation of reflection as needing to be 'systematic and analytical' is important, as this recognises the busyness of the teacher's life and the many competing professional demands of the role. Adopting a cyclical model that is clear, practical, and easy for busy teachers to follow, was central to this principle. The reflective practice process as we have devised here is cognisant of the notion of the "reflective zombie" - therefore, the process encompasses a number of prompts/doors where the user has flexibility in terms of engagement. We challenge this perspective as we draw from and across a number of models – supporting user flexibility, choice and agency.

Principle 2: Potential for Transformative Learning

Linked to principle 1, but worthy of focus in its own right, the reflective practice model has a strong focus on transformation, with the aim of influencing practice. A number of models place a particular focus on transformation, and transformative learning, oftentimes with

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[1] In many cases reflections are completed, filed away and considered as complete. This process is encouraging users to reflect on their reflections, which should unearth further issues for consideration

beginner or novice teachers e.g., Boyd and Fales (1983); Mezirow (1981); Gibbs (1988) and Jasper (2013). The proposed reflective process encourages and scaffolds teachers to consider how they can transform their practice and how that transformation can be ongoing. It also supports research informed decision making.

Principle 3: A Focus on Critical Reflection

Linked to principle 2 above, the reflective process provides capacity for pre-service and in-service teachers to raise and consider critical questions regarding questioning issues of power and preconceived ideas and assumptions, drawing on the work of Valli (1997), Brookfield (2005), Yost et al., (2000) and Zeichner and Liston (2004).

Principle 4: A Focus on Self

The 'self' is central to reflection. The proposed model places the 'self' as central to reflective practice, considering emotions, feelings and preconceived ideas and assumptions, as identified by Atkins and Murphy (1995), Yost et al., (2000); Korthangen (2001) and Brookfield (2005). Many authors have argued that practitioners that engage in the reflective practice cycle may have a high level of consciousness about their audience, and therefore engage in socially desirable ways rather than true authentic engagement (McGarr and Ó'Gallchóir, 2020; (Hobbs, 2007; Ross, 2014). Reflections demanding honesty and openness often provoke hostile, strategic responses from students (Hobbs, 2007; in McGarr and Ó Gallchóir, 2020), as reflections are inherently restricted by their academic nature (Ross, 2014). The authors have attempted to plan for this by including scaffolds in the shared learning space that promote: active listening; tolerance of error; suspension of judgment, as well as drawing on multiple perspectives on the trigger or experiential piece.

Principle 5: Flexibility, Choice, and Options

The model provides users with options, flexibility of use and choice. Users will not be required to engage with stages of the reflective process in a particular order, nor will they be required to the complete specific tasks. Rather the reflective process provides users with choice and options in terms of the approaches they may use to reflect on their process and also how they may capture these reflections. Users are provided with a rationale for each task (why am I being asked to consider this), as a way of encouraging them to see the benefits of completing and engaging with tasks, rather than being forced to do so.

Principle 6: Dialogic Learning – Shared Experience

The reflective process supports pre-service and in-service teachers to engage in shared learning and dialogue and to share experiences. This enables international peer to peer interaction, the development of intercultural awareness and supports users to integrate

additional and alternative sources of 'knowledge' beyond their own context and understanding (Vella, 1994). Developing trust, and ensuring participants respect and are respectful to others are central to effective dialogical learning and interaction.

1.8 Description of the 'Reflective Process'

1.8.1 A vision for the 'process': How the user might experience the model
- This digital reflective cycle process supports agency and choice.
- **Case studies** may not be the first engagement with the platform: rather they may be introduced as part or as a scaffold for the pedagogical processes. Cases may be the entry point for those who identify a particular trigger/experiential piece. However, the reflective practice process has been developed and designed to also support a process orientated approach to reflection where the user is supported to explore and gain a deeper understanding for the issue or challenge.
- The reflective process included below is informed by a variety of reflective models, as reflected in the literature review and the principles listed above.
- Each 'door' option reflects and includes a number of common experiences:
    - Critical Piece
    - Dialogue (Professional Learning Community, PLN) - Learning/Sharing
    - Metacognitive dimension in each section - explaining the process and why they are being asked these questions.
    - Link to 'Cases'
- Each 'door' includes prompts/questions to consider at an individual and/or shared level.
- Each 'door' includes process/pedagogical approaches to support engagement with the prompts (as evidenced across the literature review).
- The reflective process embeds metacognitive approaches to teach about reflection while engaging in the process: users should develop greater understanding and positive views towards reflection through engagement in this model, as they are clearly provided with a rationale for what they are doing and why.

Digital TA Reflective Cycle Process

Platform Home Page	Prompt Questions within the door	Processes/Pedagogies options within each door
Lobby: - 4 Doors - Notice board / discussion board: read, what, task - Discussion forum - Search engine to search for cases / challenges - Peer to peer engagement		
Door 1: What is reflection?	- What is reflection? - What are the features of reflective practice?	- Pre- Recorded Piece - Video captures teachers' testimonies. - Supportive mentoring - Commentary/Forum - Further interactivity to build this piece … similar to 'building a Wiki' - Metacognition and rationale for learning about reflection – embedded within this session but also throughout all other sessions below.
	- Why do we reflect/rationale for reflection?	- Pre- Recorded Piece. - Commentary/Forum - Supportive mentoring
	- Busting the myths of reflection.	- Pre- Recorded Piece
	- What do my international peers think? - How do you engage in reflection?	- Discussion Forum with national/international peers. - Learning/Sharing

	- How does reflection happen? (Dialogue/PLN)	- Literature/blog - Video diary. - Supportive mentoring
	- Where next?	- Further 'Menu' options available on the platform (Doors 2-4); User Choice in terms of where to go next.
Door 2: What?	- Describe what is happening in your class? - What is the issue/challenge?	- Video Blog - Blog - Short narrative reflection - Could possibly link to 'cases' - Supportive mentoring
	- Describe what is happening for you? - Why do you think this is happening? - What were you thinking and feeling (Gibbs 1988)?	- Video Blog - Blog - Short narrative reflection - 'Roll on The Wall' activity - Supportive mentoring
	- Developing our understanding of what is happening in our class/Accessing alternative lenses: What do my international peers think?	- Critical Incident Questionnaire (CIQ) - Peer Observation - Sharing learning - Supportive mentoring - Discussion Forum with national/international peers. - Literature/blog - Video diary
Door 3: So What?	- Where and how do I source additional information on the issue?	- Cases - Literature Sources - Supportive mentoring

		- Engagement with national/international peers - Engagement with professional networks (national and international)
	- What does the literature/policy suggest?	- Engagement with relevant literature (relative to the challenge/issue). - Engagement with relevant policy (relative to the challenge/issue). - Supportive mentoring
	- Additional Perspectives: what did others find and experience about this issue? What do my international peers think?	- Sharing learning - Discussion Forum with national/international peers. - Literature/blog - Supportive mentoring - Video diary
	- What interventions are described in the literature or the cases? What is the effectiveness of these?	- Engagement with relevant empirical literature (relative to the challenge/issue). - Engagement with 'Cases' - Supportive mentoring
	- Challenging our assumptions: what are we taken for granted here? - Where does the power lie in this issue? - What other dimensions (politics, societal, economic) inform or influence this issue?	- Exploration of my 'world view' - what informs this world view? - Exploration of our beliefs and values - Exploration of our philosophy of education - Exploration of our strengths and areas for development - Sharing learning - Supportive mentoring
Door 4: Now What?	- What will you do? - What action can you take? Why will you take this particular action?	- Video Blog - Narrative Reflection. - Sharing learning - Supportive mentoring

	- What evidence can you collect to let you know how effective this action was? Now try it out	
	- What did you do? - What impact did this have on your professional practice? How do you know this?	- Video Blog - Narrative Reflection. - Sharing learning - Supportive mentoring
	- What did you learn from this? - What else/what next?	- Video Blog - Narrative Reflection. - Sharing learning - Supportive mentoring
	- What did my international peers find (share my findings with peers) - Looping back to my understanding – what other issues does this raise for me to consider (can start the cycle again)?	- Sharing learning - Discussion Forum with national/international peers. - Supportive mentoring
	- What do my reflections tell me about myself and my views? (meta-reflection) - Considering hidden assumptions etc. within reflections: look back at your reflections. What assumptions are evident within it? What do you take for granted? What does this tell you about your views on teaching, learning, students etc?	-Supportive mentoring

Considerations for development of the platform

Any platform, to support reflective practice, needs to be accessible, safe, and secure. Providing multiple modes of representation of ideas, as well as multiple ways of engaging in reflective practice, is important. Teachers need extensive support and time when engaging with reflection, especially in familiarization with online approach therefore mentorship is vital. Equally mentors require affective training to support engagement with the process. Teachers need scaffolding so they don't just diary or describe the issue, but rather engage in a process of reflection that leads to new learning and practice. There should be a link between theory and practice as part of the cyclical process. It is important that users (pre or in-service teachers) don't feel under surveillance or feel they are reflecting for anyone other than themselves. If not, honesty and true criticality in reflection is compromised. Reflection and reflective practice need to be explicitly defined for pre/in-service teachers to be comfortable and have direction to engage with the experience. Consideration of the incentives and benefits for teachers to engage with the platform is important and important to make explicit and clear to users.

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