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# Questioning Theories and Models for Formative Purposes in Further Education (FE)

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ABSTRACT

*This literature review explores the existing literature on questioning theories and models within the post-secondary sector. The review highlights the formative use of questioning within further education and adult learning. It compares opposing questioning taxonomies to engage learners in higher-order thinking. The review examines the role questioning plays in critical thinking and problem-solving. It considers classroom practitioners' understanding and application of extending wait-time responses. Finally, the review highlights a lack of and need for further empirical studies within the further education sector. The most striking findings that emerge from this review are how practitioners in various sectors of education have interpreted questioning methods.*

## Main text

### Introduction

Numerous studies have attempted to explain the post-secondary sector application of Formative Assessment (FA) practices (Eccesltown,2010; Looney, 2007,2020). Research indicates that FA practices have been narrowly interpreted within the F.E. sector (James and Biesta, 2007; Torrance, 2007). Ecclestone (2002) describes the application of FA in FE as akin to a 'pre-emptive extension of summative, checking, tracking and evidencing" (cited in Carter and Bathmaker 2017, p.465). This is further echoed by Carter and Bathmaker (2017) who suggest that assessment tends to dominate content and outcomes suggesting that formative and summative assessment practices have become almost indistinguishable from each other. However, Field (2021) indicates that unlike general education where FA is proven to be a powerful pedagogical tool, (Black and Wiliam 1998), there is less direct evidence to support a similar claim in technical education.

The literature on FA practices suggests that there is a focus on questioning skills to generate evidence within the post-secondary sector rather than encouraging learners to think metacognitively (James and Biesta,2007). As Looney's (2007, p.201) study into adult literacy argues questioning and assessment are used as "a

way to track learners toward meeting summative targets (an iterative process), rather than engaging with learners to build skills, knowledge and understanding (an interactive process)". To Ecclestone al. (2010), questioning methods used by FE practitioners consistently fail to focus on metacognition. Ecclestone et al. (2010) suggest that questioning strategies are widely used in FE to break up assessment or assignment briefs into a list of sequential tasks to meet each criterion. Yet a more problematic issue was reported by Torrance (2007) suggesting that there is a particular culture where F.E. practitioners use 1-1 coaching to generate assessment evidence by asking leading questions. Furthermore, this style of questioning is used to generate evidence for observation records. In contrast, Lucas and Claxton (2013, p. 15) recommend that FE teaching staff must engage learners in "more and better questioning and less giving of 'easy' answers to complex workplace issues".

Indeed, the literature on formative questioning indicates that FE practitioners' understanding, and application of formative questioning strategies have been narrowly interpreted. From the research available the principal purpose of formative questioning seems to be associated with a testing tool to demonstrate learners' competencies rather than cognitively and metacognitively engage learners. It seems from the research referred to above that these post-secondary practices may benefit from new formative questioning approaches. This literature review aims to critique the existing literature regarding the post-secondary sector's use of questioning. This literature review argues that much of the current research in this area of education is based on primary, post-primary and HE sectors. Key search terms used focused on FE pedagogy, questioning strategies in FE, and formative practices in Vocational Education and Training (VET). This was followed by more general searches for questioning in classroom practice. Manual searches of the retrieved articles reference lists were carried out with the abstracts of key relevant articles reviewed, if relevant these were included. The themes set out in the review are based on the most frequently referenced strategies highlighted in the existing literature.

**Literature Review**

Historically, the term 'questioning' dates to the time of Socrates, a Greek scholar (468 BC) who promoted questioning to engage others in critical thinking and problem-solving in philosophical issues. Socrates' methods were later documented by his students Plato and Aristotle, a student of Plato (Robitaille & Maldonado 2015). In addition, DeGarmo (1911) noted the importance of questioning, stating, "To question well is to teach well. In the skilful use of the question more than anything else lies the fine art of teaching; for in it, we have the guide to clear and vivid ideas, the quick spur to imagination, the stimulus to thought, the incentive to action" (cited in Ellis, 1993, p.4). This was later developed by Bloom (1956) through a taxonomy of cognitive questions from lower-order to higher-order.

Black and Wiliam (1998) proposed the central importance of classroom questioning, which they outline in the characteristics of formative assessment, including questioning and dialogue, to assess learners' progress. Questioning is perhaps considered one of the most frequently used FA strategies. This is indicated further by Albergarin-Almendia (2010, p634) who suggests that "It is indicated that teachers spend up to 50% of class time on questioning and that they ask between 300 and 400 questions a day". For Clark (2010), the application of effective questioning serves as a prompt for further inquiry. As Sharhill (2013) notes, the backbone of classroom dialogue is based on questions posed between the practitioner and their learners.

A Finnish VET study by Räisänen and Räkköläinen (2014) revealed that the most dominant pedagogical method used was vocational skills demonstrations which they described as a method to engage learners in formative practices including the use of questioning. To Looney (2020) the use of questioning is essential to reveal learners' thinking processes within VET. Within technical education, formative practices such as questions are fundamental to the learning process Fields (2021). In a more recent Nigeran TVET study questioning was described as a guiding pedagogical principle. In the empirical findings, Okolie et al (2023, p451) claim that "adopting a well-planned pedagogy that creates thought-provoking questions to motivate learners to think deeper to provide new ideas or answers can help learners to reflect on previous topics learned and learn through inquiry". It would appear that formative questioning has an important role within FE and adult education.

Despite its common usage, questioning is used in different disciplines to mean different things. Since the definition and purpose of questioning vary among researchers, it is important to clarify how the term is used in education. For Long and Sato (1983), questioning is distinguished in two domains referred to as "display or referential". Donald and Paul (1989) give a different purpose to questioning, describing it in three domains: "diagnostic, instructional and motivational" (cited in Qashoa, 2012, p.53). Perhaps one of the most common descriptions offered for questioning is that of Richards and Lockhart (1996, p186) who classify questioning into three areas, namely "procedural, convergent and divergent". Questioning has a close connection to critical thinking through Socratic questioning, which was elaborated upon by Paul and Elder (1998). They identified three questioning types consisting of "exploratory, spontaneous and focused questioning". However, this is contested by Brown and Wragg (2001, p.16) who suggest that questioning should focus on "empirical, conceptual and value questioning". In summary, many definitions and categories of questioning have been proposed, this perhaps illustrates the magnitude of the literature available.

The more problematic issue with questioning is how it is used in practice by both practitioners and learners. At one extreme, Haworth (2001) suggests that the practitioner is positioned as the "controller of the spoken word" while the learners "remain in the shadows" (cited in Myhill, 2006, p.34). However, this is contested by Claxton (1990, p.27) who argues that "good learning starts with questions, not answers". Indeed, from Claxton's (1990) perspective, not including learners in the questioning process would therefore restrict learners from engaging in deeper discussions. This point can be further illustrated in Choi, et al's (2005) study in FE which demonstrated that "learners can be taught to 'scaffold' one another's questioning through the use of further prompting or probing questions" (cited in Lucas, et al. 2012, p.68).

A further concern regarding practitioner's use of questions is noted by Hannel (2003) who argues that few practitioners would be able to articulate their method of questioning. A further study by Albergaria-Alemdia (2010, p309) concludes suggesting that "There is a mismatch between teachers' perceptions and practices". Furthermore, Derrick and Ecclestone (2006) conclude by suggesting that considerable professional development is needed for FE practitioners to create and maintain their repertoires of questioning strategies. These studies indicate that professional development on questioning techniques should be consistently revised.

**Taxonomies of Questioning**

Much of the literature on cognition indicates the need for learners to engage in higher-order thinking. Cognitive taxonomies provide a valuable model for educators to promote higher-order thinking and reasoning (Wilen, 1987). Furthermore, when practitioners promote higher

order questioning as a central feature of classroom practice, learners engage in higher cognitive thinking (Brookhart, 2012). Research suggests that developing questioning based on different cognitive learning taxonomies will generate questions requiring various stages of remembering, analysing, application, and creation (Nappi, 2017). A recent comparative review by Salameh (2019) suggests that using cognitive taxonomies as a questioning method encourages adult learners in, HE to engage in metacognitive thinking. Perhaps one of the most influential learning taxonomies is based on the work of Bloom et al. (1956) who created a Taxonomy of Learning Objectives based on three educational domains, namely cognitive (knowledge), affective (attitude) and psychomotor (skills).

Bloom et al. (1956) created a hierarchy of six levels within the cognitive domain, with the cognitive objectives organised from the simplest behaviour to the most complex behaviours. The lower level of the hierarchy refers to (knowledge, comprehension and application) while the higher level of the hierarchy focuses on (analyse, evaluate and synthesize). Bloom et al.'s (1956) work was developed as a theoretical framework to guide curriculum examiners to develop testing materials. The framing of the hierarchy as educational objectives was based on building curricula and testing models, not as a guide to assist teachers in planning learning objectives. Interestingly, Hess et al. (2009, p.1) report that "Bloom found that over 95% of test questions students encounter at the college level required them to think only at the lowest possible level; recall of information". Despite its attractiveness to educators, the taxonomy was not developed as a guide to help practitioners plan for questioning. However, Hyder and Bhamani (2016) argue that it does, however, provide educators with a model to establish learning objectives and course outcomes to encourage adult learners to engage in higher order thinking.

In retrospect, Bloom's taxonomy provides a model to scaffold questioning, which educators have widely accepted to help practitioners plan for questioning (Black et al., 2003; Clarke, 2011). As Bloom (1956, p.2) illustrates, "deeper understanding would be reflected in the next higher level of the taxonomy, 'interpretation' where the student would be expected to summarise and explain the phenomenon in his/her description".

Despite the widespread use of Bloom's (1956) taxonomy, its simple hierarchical structure has been criticised. However, some critics could be challenged on their views, such as Marzano and Kendall (2006, p.16). They argue that "Bloom's taxonomy was not designed to predict specific behaviours and is, therefore, not a model or theory". Yet Bloom et al. (1956) described the taxonomy design as classifying learners' intended behaviours about how individuals act, think or feel due to participating in a curriculum activity. However, beyond this, a more problematic issue with the original taxonomy was the language used in the hierarchical structure. In response Anderson and Krathwohl (2001) revised Bloom's Taxonomy of educational objectives.

In contrast to the original taxonomy, which had a single dimension, the new version is two-dimensional. Like Bloom's (1956) original taxonomy, the cognitive objectives are organised from the simplest behaviour to the most complex behaviours. The lower level of the revised taxonomy (remember, understand and apply) while the higher level focuses on (Analysis, evaluate and create). In the new version, Anderson and Krathwohl (2001) made clear that, rather than drawing on Bloom's wording which was more evaluative and consistent with an examination and testing model, the language in the revised version was designed to support teachers with curriculum design. In addition to the revised version of the taxonomy, the knowledge dimension is particularly relevant to questioning and dialogue. They refer to

knowledge as factual, conceptual, procedural, and metacognitive. In addition, they refer to verbal assessment, suggesting that it is difficult to assess the learner's metacognitive knowledge in written form. Furthermore, they insist on the need for classroom activities and collaboration with peers, encouraging learners to engage in open dialogue, so that learners can learn from peers and share their ideas.

In his evaluation of the revised taxonomy, Hattie (2004, p.36) argues that "the most important addition is that it's a movement to a surface to deep continuum". In summary, the knowledge dimensions further reinforce the need to engage learners in higher order thinking through effective questioning. Looney (2020) argues that within VET learners need to engage in higher order thinking. According to Looney (2020, p13.) questioning used to elicit evidence of learners' understanding should avoid "close-ended questions that do not reveal thinking processes".

Yet, Wilen (1987, p.71) argues that "too little attention is given to the thinking required by these kinds of questions in the classroom instruction". Wilen also suggests that practitioners often fail to acknowledge Bloom's affective domain, which considers our feelings, emotions, and attitudes. For Wilen (1987), questioning should also be used to probe interest and feelings towards the topic being discussed. Another approach to ensure practitioners promote higher-order thinking is to plan for questioning. Drawing on research at Kings College London, Black et al. (2003) recommend that practitioners dedicate time to carefully prepare good-quality questions. This is further noted by Clarke (2010, p.344), who argues that formative questioning is demonstrated when "thoughtful questioning serves as a prompt for further enquiry, which then closes the gap between the learner's current level of understanding and the desired learning goal".

Recent research by Vale (2018) suggests that, with the explicit scaffolding offered by Bloom's hierarchy, teachers still struggle to develop their questioning to promote higher order thinking. Unlike Bartlett (2015) and Vale (2018), Magas et al (2017) revealed that the questioning prompts offered by Bloom's taxonomy were described as a helpful model in the design of higher-order questioning for both teachers and adult learners. The research explored above outlines that Anderson and Kathwoli (2001) revised taxonomy offers practitioners effective questioning models to develop learners' cognitive and metacognitive abilities when applied effectively. Nevertheless, the research indicates more professional development is needed for both novice and experienced practitioners. Other taxonomies such as Sanders (1966) and Marzano and Kendall's (2007) were also developed based on Bloom's cognitive taxonomy however, a wider discussion on these is beyond the scope of this study.

**Biggs and Collie (1982) SOLO Taxonomy**

An alternative taxonomy was developed by Biggs and Collie (1982) as a model to evaluate the quality of learning, which they refer to as "Structured Observation Learning Objectives" (SOLO). In contrast to Bloom's (1956) cognitive taxonomy, the SOLO taxonomy was created to assess higher order thinking in HE Boulton-Lewis (1995). This consists of five domains. Like Bloom's revised taxonomy, SOLO is based on two main categories: surface-level thinking and reasoning. The first refers to pre-structural, unistructural, and multiscriptual thinking, while the second refers to deep levels of relational and extended abstract thinking and reasoning. Ling Wang et al. (2016, p.11) prefer Biggs' SOLO taxonomy to Anderson et al.'s (2001) revised version, suggesting that "the disadvantage of the revised taxonomy is that it is not accompanied with the criteria for judging the learning outcomes and deepen into extended thinking like that of Biggs' SOLO taxonomy".

The SOLO taxonomy was derived initially from Piaget's (1954) cognitive development theory. However, according to Biggs and Collis (1982), the SOLO taxonomy levels do not primarily correspond with Piaget's stages but rather describe how you progress through each of them.

Within HE there has been critics of the SOLO taxonomy that the pre-structural level does not serve a purpose, indicating an absence of complexity. Furthermore, the extended abstract's final level is not commonly achieved (Stalne, 2016). Scholars such as Burett (1999) provided additional sublevels ("low", "moderate", and "high") to support the application of the SOLO taxonomy. Yet Stalne (2016) contested the changes, claiming that these alterations lack a sound theoretical basis, which limits their validity. In summary, Biggs and Collins (1982) developed the SOLO taxonomy with a theoretical basis in developmental psychology. A broader discussion on this debate is beyond this review's scope; however, it illustrates the significance of Piaget's influence on the SOLO five-stage hierarchy.

In a comparative review by Wells (2015) which investigated the application of the SOLO taxonomy as a questioning hierarchy in the delivery of Initial Teacher Training (ITT) programs. Drawing on Courtney (1986) suggestion, who argues that questioning needs to be structured at each of the SOLO levels. He insisted that if only unistructural questions are asked, the responses are limited to that level. In contrast, only learners with in-depth understanding can answer the question if questions are asked at an extended abstract level. Thus, building the complexity of questions through the five levels of the SOLO taxonomy supports learners to engage in higher-order questioning. Further empirical studies by Lucander et al. (2010) and Prakash et al. (2010) supported this suggestion. Wells (2015, p.40) notes that "all of these studies have indicated that the SOLO taxonomy can promote deeper learning and enhance quality answers".

Another interesting finding to emerge from the existing literature on technical and vocational learning is the suggestion that the SOLO taxonomy could be used as a questioning strategy for self-regulated learning (Idek 2016). Drawing on empirical findings by Hook and Mills's (2012) that suggest "the increasing complexity of the questions should be consistent with the ascending cognitive complexity of SOLO levels that can be illustrated as a shift from surface understanding to deep understanding" (cited in Idek, 2016; p.32). From this perspective, Idek (2016) suggests that within technical and vocational learning SOLO offers a possible solution to be used as a foundation for students to help generate questions, whilst providing teachers with a method for evaluating the students' level of complexity and assessing learners' answers. In summary, the SOLO taxonomy contributes to this review as a metacognitive questioning strategy available to F.E. practitioners.

In contrast to the above cognitive taxonomies for questioning another philosopher, Guilford (1956), created a three-dimensional model of creativity consisting of content, product and process. Guilford (1956) refers to the model as a process of "divergent production". To Guildford "creativity can largely be understood as part of the general function of intellect" Roberts (2021, p.5). thereby, promoting divergent thinking to a different possible solution to open questions or problems. The process dimension consisted of five concepts: cognition, memory, divergent, convergent, and evaluation. Most striking was its identification of convergent and divergent thinking processes relating to creativity, which Gallagher and Asher (1963) studied to develop their own questioning taxonomy. Festo (2016) reviewed question classification taxonomies as a guide to formulate practitioners' questions. The study revealed

that up to 41 scholars had created questioning sequences that draw on either Bloom et al. (1956) or Gallagher and Asher's (1963) taxonomy of questioning. In conclusion, Festo (2016) suggests practitioners select and adopt taxonomies that best suit the subject area being taught. In summary, the rich source of questioning taxonomies available to practitioners offers multiple possible frameworks to develop questions.

**Lower-order & higher-order questioning**

There is much debate on the use of lower-order and higher-order questioning. A review of this research by Dantonio and Beisenherz (2001) reports on the paradox exposed by scholarly research on the use of lower and higher-order questioning. As they note, Roseshine (1971) claimed that learners learn best from lower-level questioning. Yet, in their meta-analysis Redfield and Rousseau's (1981) report found that higher order questioning had a significant impact on learners' achievement. However, Samson et al. (1987) argued there was little support that confirmed that higher order questioning impacted learners' progress. while lower order questioning avoids a slow pace-lesson (Ellis, 1993), higher order questioning typically results in 50% impact on learner's progress Dillon (1998). While Cotton (1998) suggests that what remains frustrating is that the research on lower-order and higher-order questioning is yet to provide definitive results? Empirical studies largely report 60% of classroom questioning is lower order (Gall, 1970; Kerry,2002, Qashoa, 2012). Perhaps the solution offered by Elstyeest (1985) helps address the debated suggesting that practitioner's question-asking should be gradual and productive to help stimulate higher order thinking Siew & Abduallah (2013).

By contrast, in a related study in adult education, Mager et al (2017) revealed, unlike the findings above that within stimulated learning environments questioning was at the middle levels of the taxonomy chiefly application and analytical owing to the practical learning environment. Contrary to the above studies, higher order thinking has been acknowledged positively in FE and adult learning. Derrick and Ecclestone (2006) argue that lower-order cognitive questions can foreclose learning and should be avoided. Rather FE practitioners' should engage learners in questions and listening through higher order thinking. Practitioners can thereby identify any preconceptions in learners' understanding. A further approach to engage learners in higher order thinking is further expressed by Guile (2016) who examined Level 3 vocational educational pathways which encompassed both classroom and work placement learning. The findings indicated that the learners "practice-theory engagement" had indeed flourished from the added value of work placements enabling learners to engage in more "theory-practice consolidation" chiefly through questioning and dialogue to encourage higher-order thinking (p.103).

Although there is some debate on the explicit need for higher order thinking, the research suggests that higher order questioning stimulate critical thinking. Beyer (1997) indicates that, when learners engage in critical thinking, they become self-directed and are more willing to articulate their responses (Dantonio and Beisenherz, 2001). The relationship between questioning and critical thinking has been widely reported in questioning literature. In which questioning is often referred to as a tool to facilitate the intellectual process of critical thinking, thereby promoting higher-order questioning. This can be illustrated by Christenbury and Kelly's (1983) 'Questioning Circles' and Paul and Elder's (1998) 'Socratic Questioning' as both promote critical thinking through questioning. This approach to questions also promotes divergent thinking as learners are encouraged to think of different solutions to solve problems and answer open questions Roberts, et al. (2021).

**Questioning Circles**

Concerns regarding the application of questioning hierarchies are raised by Christenbury and Kelly (1983) as they suggest hierarchies have become a prescription rather than recommended guidance. In their critique, they contest hierarchical structures that depend on practitioners following the sequence from lower-order to higher-order thinking in a logical sequence. If learners ask a question during the questioning episode, they tend to jump to higher-level questioning such as interpretive or evaluative questions. Christenbury and Kelly (1983, p.11) note that "finally, our objection to a strict implementation of a question hierarchy is that they imply a sequential theory of learning, a theory which we reject". They argue that questioning hierarchies have proven to be unsuccessful at engaging learners in higher order thinking and reasoning.

In response, Christenbury and Kelly (1983) offer a questioning schema. In contrast to the hierarchy structure, they view questioning as overlapping circles, which they suggest represents the reality of questioning episodes. As an alternative to the hierarchy structure, they argue that conceptualising the questioning process in the form of three circles provides practitioners with a more flexible approach to questioning. The three circles represent different domains of cognition, with each circle referring to another aspect of reality: (1) The matter/ subject (topic or problem); (2) The personal reality (learners' relationship to the topic); and (3) External reality (the broader perspective of the subject) (McComas & Abraham 2010).

What is most striking about this model is how other scholars have interpreted it. For Wilen (1991, p.14.), the uniqueness of the questioning circle is its potential to "personalise subject matter content". Tofade et al. (2013) suggest that, although the principal design of the question circles was developed to provide more profound learner responses to questions based on written text, the model can be applied to a broad range of activities. McComas and Abraham (2010) argue that the questioning circle "begins to introduce a constructivist view towards question generation", a view shared by Dontonio and Beisenherz (2001) who suggest constructivist practices enable learners to transform and contextualise their understanding. Within adult learning placing learners in a small group setting was viewed as a good pedagogical practice by Okolie et al (2020. p.13) as this provided an opportunity for "eliciting information, asking questions and made students reflect and develop higher order thinking skills". Therefore, Christenbury and Kelly's (1983) questioning circle offers vocational practitioners a suitable strategy to engage learners in critical thinking.

**Socratic questioning**

Hyphenate questioning has many benefits; it can address a range of issues such as purpose, interpretations, or assumptions. Yet Paul and Elder (1998, p.298) argue that most students frequently ask little or no thought-provoking type questions. They further claim that "Most teachers in turn are not themselves generators of questions and answers of their own, that is, they are not seriously engaged in thinking through or rethinking through their own subjects. Rather, they are purveyors of the questions and answers of others-usually those of a textbook". One solution to this is Socratic questioning (SQ), which Paul and Elder (2007) refer to as a systematic, disciplined approach used to engage learners in critical thinking and reasoning. SQ has been associated with critical thinking as both approaches seek to provide a comprehensive view of how the mind functions. In addition, these thought-provoking questions are used to facilitate group discussions, referred to as Socratic seminars, which Paul and Elder (1998) argue cultivate the learner's inner voice.

However, the SQ method has been narrowly interpreted by others, such as Pekarsky (1994), who contests the

Socratic method of teaching. He argues that practitioners use SQ to cross-examine learners' beliefs through carefully selected questioning that leads them to question their own beliefs. This view is shared by Kerr (1999), who argues that the Socratic method is "cruel and psychologically abusive" (cited in Sahamid, 2016, p.12). However, this is contested by Robitaille & Maldonado (2015). They claim that SQ is a critical cognitive cycle that encourages learners to move through cognitive and metacognitive thinking and self-reflection.

In their critique of SQ, Tofade et al. (2013) refer to the uniqueness of SQ as the questioning is based on three categories of questions: exploratory questioning, spontaneous questioning, and focused questioning. They conclude by suggesting that the process helps learners identify gaps in knowledge and seek further clarity through Socratic seminars. By contrast, Bagshaw (2014) found that SQ ensures adult learners are more engaged, express their views deeply and get more out of the lesson. In a similar study by Sahamid (2016), revealed that SQ had a significant impact on learners critical thinking skills. However, Sahamid (2016) notes that engaging learners in SQ requires repeated practice for both the practitioner and their learners.

Torbrand (2014) noted the application of SQ to have a significant impact on young adult learners. This action research study showed that learners in FE saw the intervention of new questioning techniques as a promising approach which invites and encourages learners' voices to be heard. SQ has proven to be effective in adult education for example, Knowles (1980) invokes andragogy as "the art and science of teaching adults to learn, in contrast to pedagogy as the art and science of teaching children" (cited in Katsara and De. Wittle, 2019, p. 109). Knowles argues that adults learn differently and are more autonomous. From this perspective, the Socratic method offers adult learners a platform to participate in a practitioner-learner relationship rather than a traditional practitioner-led approach. For Katsara and De. Wittle (2019) the application of SQ can significantly improve adult learning, thereby situating SQ as a helpful strategy within the andragogy model.

However, a note of caution for practitioners is offered by Larsen (2012) for whom engaging adult learners in a SQ carries a risk that this style of teaching "might be intrusive indicating that the practitioner should be in control of acknowledging adults' personal and cultural attributes" (cited in Katsara and De. Wittle, 2019, p.110). From this perspective, practitioners who teach adult learners will still need to control and monitor the dialogue with learners. Larsen's (2012) point on cultural differences is further developed by Tweed & Lehman (2003), who investigated Confucian and Socratic learning approaches. They examined the Chinese culture in which student-generated questions and dialogue should come after passive learning. Learners acquire an understanding; only when they have mastered the topic are they ready to engage in dialogue. An interesting conclusion is provided by Tweed & Lehman (2003), who suggest that many European and American educators assume that silence indicates a lack of thought; however, they note that East Asian educators believe that silence is beneficial to higher levels of thinking.

One of the few FE studies on formative questioning strategies was carried out by Swain et al. (2006). The research was based on a constructivist approach to learning. It was heavily influenced by an early study based on the Black & Wiliam (1998a) study conducted by Kings College London. Swan et al. (2006) notes that the impetus behind the project was provided by teaching and learning observations carried out by the Numeracy Professional Development Centre. They argued that practitioners frequently missed opportunities to assess learners' conceptual knowledge and engage learners in higher-level cognitive thinking. Swan et al. (2006)

worked with participants from three FE colleges to change their formative use of questioning and discussion. Following the interventions, the research revealed significant changes in practitioners' ability to promote self-generated questions and a broader debate on mathematical questions. What was most striking was how practitioners' perceptions changed because of the study as they had become more reflective and critical thinkers (Swan et al. 2006). In contrast, a small-scale Action Research by Torbrand (2014), indicated a change in learner's ability to engage more effectively following interventions to enhance FE practitioners**,** understanding and application of Socratic questioning.

**Wait-time**

The term "wait-time" was first coined by Rowe (1986); this was based on research that spans almost 20 years. Rowe (1986) systematically reviewed a broad range of studies into classroom questioning and discussion. The study indicated that, on average, practitioners typically wait or pause for one second or less after asking a question. Rowe (1986) refers to two forms of wait-time: wait-time 1 (pausing after asking a question) and wait-time 2 (pausing after a learner's response). Rowe further suggested that, if practitioners increase the wait-time to 3-5 seconds, there is a significant improvement in learners' use of language and logic. As Rowe (1986, p.43) notes, "It makes sense to slow down a little and give learners a chance to think". An existing finding from Rowe's (1986) study reports on a project by Winterton (1977) who noted that, when wait-time is extended, learners who are often nonverbal in questioning episodes are more willing to contribute to questioning and discussion (Rowe 1986).

Drawing on Rowe's (1986) idea of extending wait-time, Tobin (1987) refers to higher cognitive learning indicating that it is essential for learners to be provided with sufficient time for cognitive processing in order to benefit from practitioners' questioning. Drawing on Bloom's lower-order and higher-order cognitive questioning model, Tobin (1987) argues that, when practitioners are teaching a curriculum that only requires recall and facts, there is little to be gained from extending wait time. However, expanding the wait time to 3-5 seconds is essential when the lesson stimulates higher cognitive processes. Furthermore, when practitioners fail to provide learners with additional thinking time, the latter are deprived of the opportunity to answer a question. A more remarkable finding from Cotton (1998) reports that, despite the advice on extending wait-time, low ability learners are frequently given less wait-time than higher-ability learners.

In contrast to Rowe (1986) and Tobin (1987) who reports a wait time of less than one second. Baysen and Baysen (2010) contest these original findings claiming that the duration of wait-time in lessons is culture-dependent. They draw on Jegede and Olajide's (1995) research, which reports a wait time of three seconds for Nigerian practitioners. In their earlier study, Baysen (2003) identifies an average wait time of 2.4 seconds among Turkish practitioners. Another problematic issue that Rowe (1986) and Tobin (1987) fail to acknowledge is the role that wait-time serves, as this may be considered for different purposes. However, the principle refers to practitioner-learner interaction. The role of wait-time also applies to exploratory learner-learner interactions within a whole class discussion, which Ingram and Elliott (2016) suggest is vital for learners' metacognitive awareness.

To address the issue of extending wait-time reported by Rowe (1986) and Tobin (1987), Ingram and Elliott (2016) proposed incorporating McHaul's (1978) concept of turn-taking in the classroom. In the application of

wait-time, creating a structure for turn-taking means that extended wait-time is structurally built into the lesson to provide opportunities for the pause to be maximised.

**Listening skills & Questioning**

The second aspect of wait-time refers to the time given for a learner's responses; it is worth acknowledging the practitioner's ability to listen for differences in their responses. This has been reported by Davis (1997), who proposed an interpretive framework to listen for differences in learner's responses to help develop questioning and dialogue. For example, when practitioners revert to the IRE questioning format, practitioners listen for the correct response Black and Wiliam (2009). Davis (1997) refers to this as 'evaluative listening'. Hodgen et al. (2009) argues that within an FE setting these correct responses are often given short evaluative feedback rather than being engaged in the broader discussion. In contrast, practitioners share an interest in their learners' responses to a question, whether it is correct or how they interpreted it.

To question differently enables further discussion and debate (Black and Wiliam 2009). Furthermore, when practitioners say less, it provides an opportunity to assess adult learners' understanding (Hodgen et al. 2009). Davis (1997) labelled this as 'interpretive listening', suggesting that listening to learner articulation and sense-making of the question is more important. As practitioners move from being evaluative listeners to interpretative listeners, they are more willing to engage in broad discussions. Davis (1997, p.69) draws on this, stating, "I call the mode of attending 'hermeneutic listening' a title intended to reflect the negotiated and participatory nature of this manner of interacting with learners". Black and Wiliam (2009) refer to hermeneutic listening as a dialogic process as the practitioners' perceptions may come to be modified by exchanging ideas and views shared by their learners.

Despite the attraction of Davis' (1997) listening model, it has been heavily criticised through suggestions that Davis (1997) fails to consider why practitioners are not consistent in the higher levels of interpretive and hermeneutic listening. As O'Connor (2001) argues, monitoring learner responses, understanding their views, and contributing to whole-class discussion puts an incredible strain on practitioners. Therefore, practitioners often revert to evaluative listening. In practice, Bugress (2012) argues that practitioners have two to three-second intervals to decide what type of response to provide to learners due to time constraints. Therefore, successfully demonstrating the higher levels of Davis' (1997) listening model is significantly challenging for practitioners; this is particularly relevant to novice practitioners.

Indeed engaging in the higher levels of Davis (1987) listening model would go towards addressing the recommendations highlighted by (Ofsted, 2018) the report concluded, "in part, that the quality of FE teaching practice is influenced by the teacher's ability to: demonstrate effective communication and listening skills" (cited in Smothers et al (2021p5) Embracing Davis's (1987) model of listening could be aligned with a shift towards learner-centered pedagogies in VET which Looney (2020, p10) states " tailors formative practices to meet the learners' needs as "integral to these pedagogies". In summary, Davis' (1997) listening strategies offer practitioners a helpful tool to enhance their teaching practice.

**Questioning behaviours**

Questioning not only stimulates a learner's cognitive response but also promotes interest in the subject and motivates learners to engage Shahrill (2013). Perhaps one of the essential aspects of questioning is the practitioner's ability to create a safe and learner-centered environment. Psychological factors that hinder learners

have been suggested by Juhana (2012) as learners are less willing to respond to questions or contribute to a broader discussion. It is suggested that this can be influenced by a fear of being laughed at by their peers or facing criticism from the practitioner. This is further indicated by Aftat (2008), who suggests that "this fear is linked to the issue of correction and negative evaluation" (cited in Juhana, 2012, p.101). According to Juhana (2012), student anxiety can hinder learner engagement as a barrier to learners questioning responses in lessons. From this perspective, Juhana (2012) notes that the learners' anxiety can influence the quality of their verbal responses and make individuals appear less fluent. Within FE the OECD (2008) report revealed that when adult learners feel safe, they are more willing to reveal gaps in learning Looney (2020).

Practitioners need to visually demonstrate an essential curiosity and a genuine shared interest in the learner's responses to questions (Martino and Maker 1994). Shahrill (2013) argues that the practitioner's facial expressions, such as smirking, can disengage learners. Ellis (1993) argues that a supportive climate for learning is dominated by exploratory talk and a willingness to investigate an issue or question together where empathy and equality are evident. In contrast, the practitioner, using an evaluative tone towards the learners' responses with a lack of concern for the learners' perceptions and views.

**Ellis' OFAKA questioning strategy for value-centred teaching**

Ellis (1993) offers practitioners a solution to engage learners in the questioning process to address questioning behaviours. The OFAKA questioning model involves open focus, analysis, keystone, and application. What is most striking about this model is its theoretical base as it is derived from three highly regarded theories: (1) Bloom's cognitive levels of thinking, (2) Guildford's model of intellectual growth, and (3) Taba, Levine, and Elroy's system (1964) for collecting, interpreting, and generalising gathered data.

Although the OFAKA model was created in 1993, it has been reported by Montello & Bonnel (2009) as a helpful model, as it offers practitioners an organisational framework for planning lessons. Furthermore, the model can be adapted to learners of all levels and is particularly beneficial for initiating critical thinking. Ellis (1993) model could also address (Pekarsky, 1994; Kerr, 1999), concerns outlined previously on the use of Socratic questioning as an alternative means to engage learners in critical thinking.

**Conclusion**

This review demonstrates just how essential questioning techniques are for FA. The questioning theories and models discussed above indicate the critical need for practitioners to develop a rich bank of questioning strategies. There is a wealth of literature on the potential benefits of effective questioning. The research outlines the critical role of the practitioner in learning to question. The literature suggests that practitioners need to make considerable efforts to create a culture of open questioning that welcomes learners' comments. There is a rich source of relevant literature on formative questioning, that offers well-established questioning theories and models, that can perhaps strengthen FE practitioners' questioning repertoires.

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