Reflexive and Generative Learning Practices

EST302 RESEARCHING CLASSROOM PRACTICES

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Introduction.

For students who use English as their primary language of communication, Australian school curriculum is tricky enough, but when English is an additional language or dialect (EALD), the learning challenge becomes much greater. During a placement at the very start of this year, I had the opportunity to work with an international student named James. James possessed low English proficiency and was enrolled into a year-10 Computing App Development (CAD) class with 25 other students. There were various levels of English proficiency amongst the cohort, but none required the level of literacy support James did. Unfortunately, given the size of the class it was difficult for the lone classroom teacher to reach the required level of individual learning support James needed. Disengaged and unable to understand the content, James would sit there and stare at his computer screen. The classroom teacher acknowledged the challenges, and I was asked to provide one-on-one support until the "real extra help" arrived. As a pre-service teacher on my second practicum, I lacked the knowledge and skill set to be as effective as I needed to be. Instead of teaching James how to learn, I spent the lessons pointing at which part of the screen I needed him to click. It dawned on me there had to be others in the same situation, facing the same challenges. Realistically, the school did not have the resources to provide the qualified and full time one-on-one support James (or other EALD students) needed, so how else could the school have provided learning support?

Educational Responsibility and Ethical Implications.

In the Mparntwe Declaration (2019), all Australian States vowed to “provide all young Australians with access to high-quality education that is inclusive and free from any form of discrimination”, “recognise the individual needs of all young Australians, identify barriers that can be addressed, and empower learners to overcome barriers” and, “ensure that young Australians of all backgrounds are supported to achieve their full educational potential”. Similarly, the Teachers Registration Board of the Northern Territory (NTTRB) Code of Ethics (2020) states teachers have an ethical responsibility to “respect the uniqueness and diversity of our community” and “develop by example the principles of social justice and equity”.

An EALD learner is a student who is learning with English as an additional language or dialect. A student that does not use English as their primary language of communication at home. While evidence in Canada and the United States suggests students who speak a non-English language at home can learn enough English in 2 years to communicate socially, it also suggested it can take more than 7 years to acquire the language skills required in academic subject areas (Collier, 1987). Australian Curriculum, Assessment and Reporting Authority (ACARA) data shows EALD students make up 25 percent of primary and high school enrolments (ACARA, n.d.), however, in the NT, the figure is higher with approximately 50 percent of NT students having a language background other than English (NT Government Department of Education [NTDOE], 2022).

An EALD learner can be of any age and the breadth of literature on EALD learnership is extensive. For this reason, the focus of this research will be narrowed to exploring how educators can utilise not only inclusive, but also reflexive and generative learning strategies to help with EALD learners who are new to Australian high school education.

Review of Relevant Research.

Definitions.

Not to be mistaken for reflective, reflexive learning is about finding strategies to question one's own way of thinking, our values, habits, assumptions, and prejudices (Bolton & Delderfield, 2018). Unlike reflective inquiry, which is an on-going procedure of evaluation and refining of a process or practice, reflexive inquiry is about examining and analysing how our own behaviour, knowledge (and its limits), beliefs, and influences can affect our personal and professional practice and interactions (Bolton & Delderfield, 2018; Cole & Knowles, 2000; Dewey, 1933; Prpic, 2005).

Grounded in constructivist pedagogy, generative learning occurs when learners actively make sense of new information or material to be learned (Brod, 2021; Fiorella & Mayer, 2015; Lee et al., 2008). Generative learning is where individuals build meaning and understanding by integrating new information to existing knowledge, creating connections between new experiences and memory (Wittrock, 1974; Wittrock, 1992).

Sinacore, Blaisure, Justin, Healy, and Brawer.

In their paper titled *Promoting Reflexivity in the Classroom*, Sinacore et al. (1999) detailed several strategies they believed promoted reflexivity. Strategies which included using course content and materials; inviting speakers; class discussions; modelling; assignments; and grading.

Course content referred to promoting reflexivity by using material that reflected the complexity of human lives. Choosing to integrate content that mirrored the diversity of lived experiences. Modelling was a way teachers could demonstrate to students how their own personal and professional experiences echoed their teaching choices. For example, my own experience as and EALD learner and my choice to implement teaching techniques that are inclusive of EALD learners. Inviting speakers referred to involving speakers of diverse backgrounds. Inviting guest voices that may not have been associated with certain subjects or positions in the past. Sinacore et al. believed class discussions were a great opportunity for reflexive learning as students were able and encouraged to articulate and explain their own beliefs and influences. Keeping in mind a kind and respectful environment must be fostered to allow for open and respectful interaction. Sinacore et al. also believed there were ways to promote reflexive learning through the use of assignments and in grading.

For example, with assignments, students could be encouraged to collect data from personal sources like their families, their cultural communities, their friends and even their peers to help guide their thinking. In addition, students were asked to keep some kind of journal, written or digital, as a reflexive account of the assignment process. With Grading, students have a tendency to attach their worth to their grade. Sinacore et al. suggested there may be ways to develop grading systems "congruent with the goals and process of the class while at the same time valuing scholarship", providing examples where the whole class would design and agree to the evaluative criteria and grading process.

Wittrock.

Wittrock (1992) theorised the focus of learning is related more to generating relations as opposed to just storing information. He believed teaching understanding involved the process of leading learners to construct a relationship and connection between prior knowledge and new information. In Wittrock's model of generative learning, Wittrock believed four processes: learning (attention), motivational (interests), knowledge creation (concepts and beliefs) and generation (analogies, metaphors, and summaries), resulted in the generation of meaning that led to increased understanding (Wittrock, 1990).

In researching Wittrock's model, Wilhelm-Chapin and Koszalka (2016) believed Wittrock based his Generative Learning Theory model on his understanding of Luria's theory of brain function. In that, a learner's motivational and learning processes were associated with the attention and arousal unit of the brain and it is that functional element that controlled awareness of stimuli within an environment, helping the learner decide whether to acknowledge or ignore (Languis & Millar, 1992; Lee et al., 2008). So effectively, motivational responses such as interests dictate the learner's response to new information. Wilhelm-Chapin and Koszalka (2016) explained that once the motivational process acknowledged the new information the brain would then activate the learning process and direct the learner's attention. How much attention was focussed on the content would depend on other stimuli in the environment, as well as individual behaviours and preferences that regulate attention to the new content. From there, the knowledge creation process would occur, a process which was associated with the sensory input and integration unit of the brain (Languis & Millar, 1992). Attending to the stimulus and based on existing knowledge and beliefs, learners would begin to create new models with new information. The new information that is collected, is also analysed, and stored. In Wittrock's model, associations are then formed between these sequences and patterns and what we, as learners, already know (Wittrock, 1992).

Mapped to Luria's executive planning and organisation unit of the brain, the generation process referred to process where learners label, organise and store the links between the connections and relationships (in a way that fitted the learner's logic) for future recall (Languis & Millar, 1992; Wilhelm-Chapin & Koszalka, 2016; Wittrock, 1990). Wittrock suggested that even if students were given direct instructions or solutions to a problem, it did not automatically mean they understood the new information. Students are still required to make that connection to achieve comprehension. Personally, this theory has played itself out many times in my own learning where I have had to reverse engineer a solution to understand a concept.

Fiorella & Mayer.

Educational psychology professors, Fiorella and Mayer (2015) suggested learning and memory are constructive in that "learning for understanding involves building meaningful knowledge structures that can be applied to new situations". Fiorella and Mayer's generative learning model focuses on 8 specific learning strategies to help promote generative learning. These include learning by summarising, learning by mapping, learning by drawing, learning by imagining, learning by self-testing, learning by self-explaining, learning by teaching, and learning by enacting. Simply put, Fiorella and Mayer believe these strategies are generative because they encourage the learner to actively think about what they are learning. When performing each of these processes, the learner is choosing the most relevant parts, organizing it into coherent mental representations, and then incorporating it into existing schema. For example, learning by summarising helps the learner articulate lesson content in a concise and coherent manner where the learner includes their own interpretation of the most important parts of the lesson. Mapping helps a learner convert written and oral instruction into a visual link. Examples include concept maps, mind maps or graphic organisers such as flow charts. Mapping encourages learners to use the most pertinent information as nodes and structure coherent links to demonstrate understanding. Learning by drawing involves the learner composing an impression of the lesson. The learner can use any drawing tool (including digital). Much like mapping, the generative learning comes from the learner's ability to translate relevant linear text to a spatially organised drawing. Learning by imagining refers to the learner creating mental images that summarise the content. The generative learning aspect is similar to drawing and mapping but unlike drawing a learner is not limited by physical ability. Learning by self-testing involves answering practice questions about previously learned content in the hopes of activating and retrieving a students most relevant knowledge. Fiorella and Mayer believe the benefits of self-testing include improving memory and recall.

Learning by self-explaining refers to explanation of content during the learning process, focusing on inferences and clarification to understand new material, and making these connections leads to generative learning. Learning by teaching helps learners demonstrate their understanding by explaining a process or concept to another student. Generative learning is activated through the delivery of the most relevant information in a clear and coherent manner. And finally, learning by enacting involves participating in tactile tasks during learning. An example would be asking students to demonstrate understanding of physics by throwing a tennis ball. Generative learning from enacting refers to the connection of knowledge to concrete objects and actions.

Critique of Strategies.

Connecting Reflexive and Generative Practices to the Classroom

Using my experience with James as a reference, I believe James's classroom teacher followed Wittrock's model of GLT well. The lesson and unit objectives and summaries were clear. The analogies, metaphors and summaries used to explain the content were relatable and relevant (for the most part) and articulated well. James's classroom teacher played to the student's motivational responses. He introduced the unit by allowing the students to play a representation of a game they would eventually build as part of their final project. During the design process, James's classroom teacher would provide opportunities in line with Fiorella and Mayer's model to encourage generative learning by asking the students to provide flow charts of their desired process. They were asked to draw or find images that not only provided a mental representation of their game, the summary and conceptualisation of mapping also sought to provide a connection to the learning outcomes and assessment criteria. For the students who were raised in Australia where English was their primary language, these generative learning practices fared well. The difficulty however for James, was his inability to understand the spoken and written instruction and his inability to relate to the white-Australian culture references used.

The lesson content and delivery needed to change. To be inclusive, the mode of teaching had to be adjusted. Employing reflexivity in the classroom would be observing student responses, engagement, participation and adjusting not only how content is delivered, but questioning how equitable and relevant some elements of the content and curriculum were for EALD learners, specifically, those who were new to Australia with high literacy needs, like James. For example, is a mandatory 300-word exploratory essay on computer-gaming ethics, as a summative assessment fair and equitable for students who have never written essays in English before?

Summary of Discussion.

James and other EALD students new to Australian high school systems are met with a number of challenges, socially and educationally. Even if they are able to communicate on a social level, it does not mean their English is proficient enough to understand specific subject areas (Collier, 1987). Seeing James disengaged and staring into space whilst important learning content was delivered, was confronting. This was the information he needed not only to complete the lesson task, but it was also a critical element leading into his assessments. The school had promised James and his classroom teacher, additional support. In the 3 weeks I was there, not once did I see James receive that "extra" support the school openly indicated he needed.

In summary, employing reflexive and generative practices may help James and other EALD learners in absence of dedicated full-time one-on-one support. Reflexivity to question how we educate students, not just EALD learners, given all students' individual learning needs. As a teacher, asking myself, "Is how I'm delivering this content effective and inclusive for all?" or "What is preventing me from using a different strategy?". Also, using generative learning strategies to teach EALD learners, "How to learn and understand" and not just "What to know".

Recommendations.

Whilst the strategies put forward by Sinacore et al. (1999), Wittrock (1990; 1992) and Fiorella and Mayer (2015) certainly have their benefits and advantages, the strategies would need to be adjusted to suit EALD learners. For example, with Sinacore et al.'s class discussion strategy, a collaborative/cooperative approach would certainly help James. Especially if there were other students who could converse in James's parent language to help translate the more complex concepts. Evidence suggests that when students cooperate they learn to communicate ideas, clarify differences, and construct new understandings (Gillies, 2008; Webb et al., 1995). Adjustments to Wittrock's model would see small changes in the use of analogies and metaphors. Instead of only using westernised Australian cultural references, including a global and more diverse approach may offer more effective connection to the curriculum content. Adjustments in the motivational piece of Wittrock's model may include providing more freedom in designing their own game, instead of a fixed genre. With Fiorella and Mayer, applying the learning by images would certainly be beneficial for James. Using screen shots as an instructional piece, rather than text-heavy directions would work better for EALD learners.

This is such a big discussion, and it is difficult to provide a definitive one-size-fits-all solution to address all the challenges EALD learners face. However, for my own personal and professional learning, addressing these challenges and making changes from a reflexive and generative perspective will hopefully improve the way I teach and provide a more inclusive and equitable learning environment for EALD learners.

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