Learning to Learn - The Transfer of Metacognitive Skills from a Non-formal to a Formal Context: A Student's Perspective

The University of Malta

Mary Rose Formosa

A dissertation presented to the

Faculty of Education

in partial fulfilment of the requirements for the degree of

Master in Teaching and Learning

in

Education with Ethics Education

October 2023

L-Università ta' Malta

FACULTY/INSTITUTE/CENTRE/SCHOOL: **Faculty of Education**

DECLARATIONS BY POSTGRADUATE STUDENTS

(a) Authenticity of Dissertation: I hereby declare that I am the legitimate author of this Dissertation and that it is my original work. No portion of this work has been submitted in support of an application for another degree or qualification of this or any other university or institution of higher education. I hold the University of Malta harmless against any third party claims with regard to copyright violation, breach of confidentiality, defamation and any other third party right infringement.

(b) Research Code of Practice and Ethics Review Procedures: I declare that I have abided by the University's Research Ethics Review Procedures. Research Ethics & Data Protection Form code EDUC-2022-00200.

As a Master's student, as per Regulation 77 of the General Regulations for University Post-graduate Awards 2021, I accept that should my dissertation be awarded a Grade A, it will be made publicly available on the University of Malta Institutional Repository.

Abstract

Following on the seminal work of Flavell in 1976, metacognition, or learning to learn, has witnessed important advances in research. As a result, the importance of learning how to learn is emphasised just as much as having content knowledge. The aim of this study is to analyse the perspectives of nine students who participated in an Erasmus+ youth project which focused on metacognition. They expressed multiple perspectives on the development of metacognitive skills and transfer of these skills from the non-formal context of the youth project to their formal education context. The data was collected through online interviews and coded using MAXQDA® software. It was analysed using inductive thematic analysis. The codes were categorised under four major themes which addressed the four research questions. Findings showed that the majority of the research participants' perspectives indicated that they found metacognitive skills relevant and transferable to their formal education context. The results of this study could provide a starting point for local research to address a lacuna in this area, e.g. explore educators' awareness of metacognition, or investigate students' academic achievement following the teaching of metacognitive skills. The recommendations list a number of good practice suggestions to stakeholders on the benefits of metacognition and the teaching/learning of study methods and tools.

MTL (Education with Ethics Education)

October 2023

Keywords: Metacognition - Erasmus+ - Non-formal Education

Formal Education - Pedagogies - Student Perspectives

Dedication

*

This is for you, K.

You accompanied me from the start to finish line of this journey.

You listened to me, supported me and believed in me.

You also make me laugh.

I can never thank you enough.

*

Acknowledgements

Any study programme is an incredible journey of learning with highs and lows. It is hardly ever smooth and uneventful. There are straight and easy roads … others are winding and difficult. During my MTL journey I encountered both but fortunately I was not on my own.

The first acknowledgement goes to the person to whom I am dedicating this work. It would have not been possible to start, continue and complete this journey without being continually supported in the way I was. Secondly, I would like to thank the nine research participants from Dyslexic Teens Dialogue youth group who were participants in the Erasmus+ youth project, for agreeing to share their perspectives with me and making this study possible.

I am grateful to Ms. Sarah Vassallo for insisting with me to pursue this research topic and to my supervisor, Dr. Louis J. Camilleri, for accompanying and guiding me along the learning journey that this study represents. I would like to thank Dr. Michelle Attard Tonna, Deputy Dean of the Faculty of Education and Mr. Mario Testa from the Teaching Practice Office for the support given with immediacy, time and time again.

I am obliged to my mentor, Ms. Bernadette Hall, who was very helpful and patient with me when I doubted my progression. Likewise, to Ms. Stacey Buhagiar and Ms. Antoinette Azzopardi, teachers of Ethics, for sharing with me their good practices and tips. My profound appreciation goes to my fellow students in my MTL course and to those educators who recognized my needs and met them along these 3 years. Last but not least, my family deserves a big mention! They know how much this accomplishment means to me and understand my ambition and drive. They were patient with me when the going was not easy.

To all of you here on this page, I am at my final destination because you were present. This is the end of this journey, but there are other destinations out there waiting to be explored.

Contents

List of Figures

Page

List of Tables

Page

List of Abbreviations

CPBL - Collaborative Project-based Learning

EU – European Union

PMI – Plus Minus Interesting

QDAS – Qualitative Data Analysis Software

SRL – Self-regulated Learning

TA – Thematic Analysis

ZPD – Zone of Proximal Development

Chapter 1: Introduction

1.0 Preamble: What is Metacognition?

"The demands of the twenty-first century require students to know more than content knowledge; they must know how to learn." (Wilson & Bai, 2010, p. 269). This study intends to determine the knowledge and understanding about metacognition (learning to learn) of nine students, who volunteered to be the research participants. The study will proceed to discuss their perspectives on the relevance and transfer of metacognitive skills acquired in the non-formal context of an Erasmus+ youth project to their formal education context. Since their journey of learning spans two contexts, I find it relevant to start this study with two representative definitions of metacognition, one from a non-formal source and the other from an academic source, to represent the two contexts of learning explored by the research participants.

***

> Metacognition is a big word for something most of us do every day without even noticing: Thinking about our own thoughts. Reflecting on our thoughts is a big part of understanding our feelings and learning new things. When kids hit challenges – a hard math test, a fight with a friend – it can be tempting for them to give up. But in order to thrive, kids need to be able to go from "I can't" to "How can I?" (Jacobsen, 2023, para. 1).

***

> Metacognition refers to one's knowledge concerning one's own cognitive processes or anything related to them, e.g., the learning-relevant properties of information or data. For example, I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double check C before accepting it as fact (Flavell, 1976, p. 232).

***

1.1 Motivation: My Story

I have been practising youth work on a freelance basis since 2011, managing an informal group of young people called "Dyslexic Teens Dialogue". Along the years of my practice, I had various opportunities for training through Erasmus+ funds. One such training opportunity I attended was called "Tuning-in to Learning and Youthpass" and was held in Prague in April 2019. This training introduced me to the processes of learning, how learning occurs in/through youth work and the concept of learning to learn or metacognition. I used the knowledge acquired during the training course to create a new youth project and applied for funding in September 2019. The funding was approved in December and the project kicked off in February 2020 with 30 participants from two informal groups from Malta and Italy (https://erasmus-plus.ec.europa.eu/projects/search/details/2019-3-MT01-KA205-074043).

Subsequently, in October 2020, I started reading for a Master's degree in Teaching and Learning and as a student-teacher I chose to explore metacognition further through this study. In this way, I was able to unite my subject of interest and areas of practice to explore the perspectives of students on the development and transfer of metacognitive skills from the non-formal context of the youth project to their formal school context. Moreover, in view that metacognition is a field of research which merits developing (Azevedo, 2020), I wished to contribute to this body of knowledge particularly in our local context.

Finally, I would like to add that I chose to write in the first person to confirm my positionality and role in this study. I also included numerous *verbatim* quotes from the research participants in Chapter 4. Gilgun (2005) confirms my choice and affirms that: "The use of the first person and of direct quotes is a way of acknowledging that the voices of researchers and those whom we research are not the same yet are interconnected" (p. 259).

1.2 Context of the Study: Erasmus+ Youth Projects

1.2.1 Erasmus+ Programmes by the European Union

The teaching, exploration and application of strategies for the development of meta-cognitive skills were implemented during and in the social environment of a Key Action 2, Strategic Partnership for Youth, Cooperation for Innovation and the Exchange of Good Practices Project funded by the Erasmus+ programme of the European Union (EU). An Erasmus+ youth project is a “pedagogical tool” and “a phenomenon that is growing in Europe, both in formal and non-formal contexts” (Youth Partnership, 2017, p. 10). It is a structured activity programme targeted at young people aged between 13 and 30 years of age with the aim to develop some or all of eight key competences for lifelong learning. Within the context of the EU, metacognition or learning to learn competence is one of these eight key competences (European Commission, 2019). According to the recommendation of the Council of Europe, the aim for such a project is to support "the development of learning to learn competence as a constantly improved basis for learning and participation in society in a lifelong perspective" (The Council of the European Union, 2018, p. 189). The work of Wilson and Bai (2010) together with that of Hoskins and Deakin (2010) also confirms learning to learn as a future key competence.

1.2.2 The Erasmus+ Youth Project and Outcomes

The Erasmus+ project was called “Our Journey: Let’s Continue the Conversation”, reference 2019-3-MT01-KA205-074043. The project lasted 36 months and the objectives of the project were “to show that young people as learners are not passive recipients of knowledge but can actively collaborate with peers, adults and professionals to take control, individualise and own their own learning” (European Commission, n.d.).

The outcomes of the Erasmus+ project were to design a training workshop to teach educators about metacognition and study strategies/tools and to create a website as a repository of good practices in learning: www.mylearningtolearn.com.

1.2.3 The Youth Participants

The Erasmus+ youth project brought together 20 mixed-ability and mixed-gender students aged between 15 and 23 years of age from the two partner countries. They were at different stages of their academic journey, ranging from secondary school education right through to tertiary level (Master's degree) for the Maltese participants and from *Scuola Secondaria di Secondo Grado* (secondary education) to the level of *Università* (tertiary education) for the Italian participants. Nine of the Maltese youth project participants volunteered to be the research participants of this study. They participated in learning activities along the timeline of the project together with peers from Malta and Italy. The work of Clark and Cassar (2013) evidences that during adolescence "there is an emotional shift from reliance on parents to peers" (p. 36) and relationships with peers become more important and a priority for young people of this age group.

1.2.4 Non-formal and Formal Education

A study by Norqvist and Leffler (2017) found that it is difficult to divide learning into non-formal and formal categories. The benefits of non-formal education can be evidenced when both non-formal and formal learning contexts are integrated, however since this study explores transfer of learning between these contexts, it is important to define both separately.

1.2.4.1 Non-formal Education

Prasetyo, Suryono and Gupta (2021) present non-formal education as the ideal context for the development of 21st century life skills. Stuart and Maynard (2015) describe non-formal learning as that which occurs outside formal education structures such as schools, vocational colleges or universities, instead taking "place through planned activities, in other

words, activities that have goals and timelines" (p. 236). They further distinguish that this type of learning does not require the role of a teacher, as the learning that goes on in such settings is an active process through the voluntary participation of young people. Davies, Taylor, & Thompson (2015) describe non-formal education as "a structured and planned intervention into young people's lives with identified and intended measurable outcomes" (p. 85). Examples of non-formal education are activities such as discussions, workshops, individual and group presentations and teamwork to create learning resources.

1.2.4.2 Formal Education

Formal education is the time spent within compulsory education and is education which is provided by education institutions such as schools, colleges and universities. Formal education includes a type of learning which includes "basic education" and is hierarchical in structure (Schugurensky, 2000). As this study is situated in Malta, the National Curriculum Framework (Ministry of Education and Employment, 2012), gives direction for a syllabus to be designed around the learning outcomes to be achieved, the content, methodology and the length of the programme. Formal education requires that learning can be assessed, measured and certified at the end of the programme of studies. Learning is directed by a teacher, who remains in control of the learning, and learning takes place within the framework of the curriculum which is imposed on learners (Rogers & Freiberg, 1994).

1.3 Research Aims

The study aims to develop an understanding of the research participants' perspectives on the development of metacognitive skills during the Erasmus+ youth project and on the transfer of these skills into their formal educational settings. This work explores their journey of learning within the social learning environment of the youth project which was guided by the premise that "the expert does not directly teach or impose structure, but rather provides these aids, as needed, adjusting them to the ability level of the novice and supporting the

novice in going to the next step. Agency is with the novice; the expert provides coaching" (Larson, 2006, p. 684).

1.4 Research Questions

This study will address the following research questions:

- What is the student's understanding of metacognitive skills?
- What are the student's views on the relevance and transference of metacognitive skills learnt in a non-formal setting to a formal setting?
- How relevant are metacognitive skills for the student?
- How are the skills learnt in a non-formal setting being transferred to a formal setting?

1.5 Positionality

It is pertinent to note my dual role in this study, as a researcher and as a project coordinator/participant. I created the Erasmus+ project based on a subject of my choice from design stage to closure. I recruited the group of youth participants and adult facilitators according to the age-group, profiles and roles defined by the project. My input created the framework for context and content according to the project application and to adhere to the EU priorities for youth that the project addressed. I gave direction regarding the learning activities of the project and according to the budget allocated. I worked with all the project participants, including the nine research participants, for the whole 36-month project lifetime developing a relationship of trust, collegiality and collaboration while still retaining my role as project leader. One of the challenges of writing this study is to position myself within the research as positionality can affect all aspects and stages of the research process (Holmes, 2020). It is necessary to continually practise awareness of how my position can influence my own perspectives (Harré, 2012).

Consequently, to counteract any influences in the recruitment process, a gatekeeper, who was a participant in the Erasmus+ project, was engaged to approach the project participants with information about the recruitment for this study. Thus it was possible to mitigate any coercive influence from myself in the provision of information and recruitment process. A critical friend was also involved in the process of the writing of this study to provide honest, unbiased feedback and to "ask provocative questions, provide data to be examined through another lens, and offer a critique of a person's work as a friend" (Mat Noor & Shafee, 2020, p. 1).

1.6 Theoretical Framework: Vygotsky's Learning Theories

The seminal work of Vygotsky (1978) on scaffolding, the zone of proximal development (ZPD) and the valuable interactions with "a more knowledgeable other" (using Vygotsky's terminology), places learning as a social process within the immediate environment and this forms the theoretical framework to this study. The Erasmus+ project created a social learning environment unlike formal education where learning is teacher-led and occurs within cohorts of the same age group. Adult facilitators used non-formal pedagogies and scaffolding techniques (Wood, Bruner, & Ross, 1976) to work with the project participants to reach the project aims. Kuhn and Dean (2004) describe their contribution: "A more promising adult role involves introducing young people to activities that have a value that becomes self-evident in the course of engaging them and developing the skills the activities entail" (p. 273). Ultimately, the youth participants were able to learn from adults and peers by "getting involved in their learning, instead of passively receiving information from an instructor … devising ways of conveying it" (Rubin & Hebert, 1998, p. 26). The benefits of peer education are well known to create "peer support, meaningful contribution, teaching/leadership role, and student ownership" (de Vreede, Warner, & Pitter, 2014, p. 37).

Bee and Boyd (2007) contend that Vygotsky's ZPD works on two levels. The first level is reached when a child can achieve independently while the second and higher level of achievement is attained when the child can achieve when supported by an adult or a "more knowledgeable other" (Vygotsky, 1978). Once the ZPD is reached, this is called the baseline, *viz.* the point at which the child can work on the task independently. At this point there is the intervention/instruction or "scaffolding", meaning that guidance/ideas/support is given so the child can continue working on the task or until a task can be achieved independently. Subsequently, the child will also be able to use the language of the teacher during the scaffolding process and in future tasks.

The project activities were guided by and modelled on the theoretical framework of Vygotsky's social learning theories and by using non-formal pedagogies developed a practice which is opposed to the "banking" (Freire, 1970) style of instruction of formal education settings, where "the teacher deposits in the minds of the learners who are considered to be empty or ignorant, bits of information or knowledge, much like we deposit money in an [empty] bank account" (Rugut & Osman, 2013, p. 24). Dennen (2004), explains further:

> Adults provide children with metacognitive support by breaking down tasks from those that are beyond the child (learner's) abilities into smaller, more manageable ones that are within the child's grasp. Within this method it is important to ensure that the learners' participation is still meaningful and clearly contributes to the overall goal; tasks should not be broken down and segmented to the extent that learners no longer feel like participants in the overall process or cannot see how their work contributes to the end result. (p. 815)

The constructivist paradigm encourages students to question, experiment and feel the need to know (Garrison, Neubert, & Reick, 2012). Thus within a youth project, the educator's role is to facilitate knowledge not transfer it. In the context of formal education, Green and Gredler (2002) support this pedagogy, while the work of Livengood, Lewallen, Leatherman and Maxwell (2012) supports the framework of Vygotsky's ZPN, through which

facilitation is done by "scaffold" (Vygotsky, 1978) technique and the guidance of "more knowledgeable others" (ibid., 1978), i.e. adults and peers.

1.7 Dissertation Outline

This study will be presented in five chapters. Chapter 1 introduces the background to the study. The context, aims, rationale and research questions are explained in this chapter. A detailed literature review which includes international peer reviewed papers follows in Chapter 2. Subsequently, Chapter 3 outlines the methodology chosen to carry out this study, *viz.* the recruitment method and how data was collected and analysed. Chapter 4 contains the findings and discussion of the research participants' perspectives which were coded using MAXQDA® and thematically analysed (Braun & Clarke, 2017). The answers to the research questions of the study, limitations, recommendations to stakeholders and for future research together with a final reflection are presented in Chapter 5.

1.8 Conclusion

Chapter 1 presented the motivation, aim and context of the study together with the theoretical framework and the research questions. A literature review follows in Chapter 2 which delves into the literature available on theoretical positions and empirical studies to form a sound backbone to this study which explores students' perspectives on the transfer of metacognitive skills.

Chapter 2: Literature Review

2.0 Introduction

This chapter will explore academic literature and resources about the research topic and starts with a review of theories about metacognition and its relevance to learning. The concept of metacognition will be further deconstructed to provide an overview of its development, application, and transfer. To provide a balance and a critical stance on the topic, this chapter will also include literature to open the discussion on research which contrasts findings on meta-cognition, an important consideration in any research exercise.

2.1 Understanding Metacognition

Vygotsky's Socio-Cultural Learning Theory puts learning as an active process through which students' learning is enhanced by being presented in their own context and developed through their own social environment (Hall, 2007) with the support of a "more knowledgeable other" (Vygotsky, 1978). Within the social context of the Erasmus+ youth project, the research participants were able to exchange ideas and perspectives, thus actively learning from each other in a community of practice. The work of Lave and Wenger (1991) puts forward the notion of "situated learning", making learning a social process and not an individual one.

Wilson and Bai (2010) note that: "learning is an active process that requires students to think about their thinking, or be metacognitive" (p. 269). They continue to assert that "a person who is metacognitive knows how to learn because he/she is aware of what he/she knows and what he/she must do in order to gain new knowledge" (p. 270). Metacognition has entered into everyday language and is often used in settings, for example education settings (Dimmitt & McCormick, 2012). Georghiades (2004) states that awareness of one's own cognition dates back

to the writing of Plato. Dewey (1933) believes that learning occurs more from reflection on an experience rather than from the experience in itself; this ties with the seminal work of Kolb (1984).

The term "metacognition" (1976) was coined by John H. Flavell, an American psychologist who specialises in children's cognitive development. In a later landmark article, Flavell (1979) distinguishes between metacognitive knowledge, experience, action/strategies and goals/tasks. He presents metacognitive knowledge as consisting "primarily of knowledge or beliefs about what factors or variables act and interact in what ways to affect the course and outcome of cognitive experiences" (ibid., p. 907), adding that there are three main categories for this, *viz.* "person, task, and strategy" (p.907). He defines metacognitive experiences as "any conscious cognitive or affective experiences that accompany and pertain to any intellectual enterprise" (p. 906). Moreover, he explains metacognitive strategies as those that a person uses deliberately to control cognitive processes, such as "the cognitions or other behaviors employed to achieve them" (p. 907). Metacognitive goals/tasks were included as a fourth form of meta-cognition, which he describes as "the objectives of a cognitive enterprise" (p. 907).

In his following study, Flavel identifies two elements of metacognition: knowledge and regulation of cognition (Flavell, 1985). He subdivides metacognitive knowledge into three parts: declarative, procedural and strategic knowledge. He describes metacognitive regulation as the ability to monitor and access knowledge in a way to be able to identify how and when to use specific skills. He also emphasises the importance of motivation as an essential element in metacognition as even though metacognitive strategies can be taught and learnt, students need to be motivated to complete a task for these skills to be effective. On motivation, the work of David McClelland (1987) identifies three basic motivators/needs: achievement, association or

power. These motivators are not innate but develop through life experiences. This ties well with aspects from Flavell's studies (achievement) and Vygotsky's social learning theories (association/power) which form the framework of this study. Essentially, McClelland's (1987) work indicates that motivators are formed through a person's cultural and life experiences: those with the need for achievement like to be problem-solvers and able to reach goals, those with a need for affiliation like to belong to a group, while those with a power motivator like to lead and be in charge of others.

Hartman (1998) writes about the importance of metacognition as it "affects acquisition, comprehension, retention and application of what is learnt, in addition to affecting learning efficiency, critical thinking and problem solving ability" (p. 1). The concept behind meta-cognition is to create and develop learners so they can learn independently and practise self-regulation. Self-regulation can be achieved when students are able to acquire the skills to teach themselves and reach an understanding of the content autonomously. Zimmerman and Moylan (2009) highlight the importance of the agency of the learners as the acquisition of metacognitive skills requires that students be active learners, demonstrating "personal initiative, resourcefulness and persistence" (p. 299) in lieu of showing passivity and complying with previous instructions. This echoes the importance of motivation in the acquisition of metacognitive skills as high-lighted in Flavell's landmark publication. Moreover, with regard to metacognitive regulation strategies, Dinsmore, Alexander and Loughlin (2008) found that students felt that this served as a strength to increase their motivation and expectation to succeed across various subjects.

Metacognition or "knowing about knowing" (Flavell, 2004) develops from childhood into adolescence (Moses-Payne, Habicht, Bowler, Steinbeis, & Hauser, 2021) and increases in adolescence (van der Stel & Veenman, 2014). It is an important skill not only in adolescence

(Santrock, 2010) but also in the later years of "emerging adulthood" (Arnett, 2004). During these life stages, students are at a pivotal phase of cognitive ability and development. The results of a study by MacKewn, Depriest and Donavant (2022) support their hypothesis on age difference. They found that adult students (25 years or older) achieved higher scores in meta-cognitive knowledge and regulation when compared to pre-adult students aged under 25 years.

The findings also support the suggestion that adult learners were able to learn material by connecting ideas together, applying critical thinking more often, had better time management and increased self-awareness. Interestingly, Weil, Fleming, Dumontheil, Kilford, Weil, Rees, Dolan and Blackwell (2013), found that metacognition "plateaued going into adulthood" (p. 264).

Metacognitive development assists a person's ability to tackle learning tasks according to the work of Kuhn (2008) and thus helps improve the way in which students function and learn cognitively. A number of studies, e.g. Carretti, Caldarola, Tencati & Cornoldi (2014); Ohtani & Hisasaka (2018) and Zepeda, Hlutkowsky, Partika & Nokes-Malach (2019), evidence that metacognitive skills improve performance across many fields. Additionally, Pirrie and Thoutenhoofd (2013) argue that learning to learn is much more "than the promotion of fluent task-oriented behaviour" (p. 610). To the latter they add the dimension of "fluid sociality" (p. 610) emphasising that learning to learn goes beyond the narrow definition of skill formation, i.e. the 'learning how' or 'learning that' (p. 622), citing that we should start to consider "learning as a social process that takes place in a school *qua* household where people would be treated as ends in themselves rather than as means to ends" (p. 622). This concurs with Vygotsky's (1978) learning theories and acknowledges the participation and direction of the learner in the learning process (Dewey, 1938). The concept of social learning is also emphasised in the work of Leat

and Lin (2002) who affirm that pupils stated that "much of their learning comes from the medium of talk and is the result of the social construction of meaning" (p. 404).

2.1.1 The Neuroscience behind Metacognition

The work of Fleur et al. (2021) states that metacognition "plays an important role in learning and education" (p. 1). Additionally, research shows that progress has been made on the studying of the neural mechanisms of metacognition, e.g. Fleming & Dolan (2012) and Vaccaro & Fleming (2018). Metacognition is researched through different contexts and methods, for example cognitive neuroscientists use tasks which focus on behaviour, while educational neuroscientists use quizzes, interviews or journals to measure metacognition. In cognitive neuroscience, studies on metacognition focus on two main elements, based on the work of Flavell on metamemory. The two main elements are metacognitive knowledge (the knowledge of one's own processes of cognition and their ability to be able to reflect and monitor them) and metacognitive control (the ability of one to self-regulate, being able to plan and adapt behaviour based on expected results or outcomes). In the realm of education, metacognition has been investigated using Self-Regulated Learning (SRL) theory which encompasses "the cognitive, metacognitive, behavioural, motivational, and emotional/affected aspects of learning … a considerable number of variables that influence learning (e.g., self-efficacy, volition, cognitive strategies) are studied within a comprehensive and holistic approach" (Panadero, 2017, p. 1). This finding also aligns with the recent work of Frazier, Schwartz and Metcalfe (2021), who propose a model of SRL which draws on the combination of possible selves, behaviour, agency and motivation.

However, Fleur et al. (2021) argue that in contexts of education, the key question remains on the influence of metacognition on academic achievement, if training on meta-cognitive skills

would lead to higher academic achievement and if development in both features develops "in parallel" (p. 6). They cite various studies in their paper and state that research by Veenman, Van Hout-Wolters, and Afflerbach (2006), shows that at around five years of age there is the emergence of meta-knowledge and around 8 years of age there is the emergence of meta-control, both developing over the course of the years, while the work of Weil (2013) found that meta-knowledge continues to develop into adolescence. According to Borkowski, Chan and Muthukrishna (2000), initially meta-knowledge is very domain-dependent but eventually evolves into domain-independent due to making connections between knowledge and experience.

Studies such as those by Veenman, Van Hout-Wolters, and Afflerbach (2006) and Veenman and Spaans (2005) show that meta-control follows suit. These studies further evidence that "common methods used to train offline metacognition are direct instruction of meta-cognition, [and] metacognitive prompts" (p. 7). To support further the strategies for learning used in the project, they state that "metacognitive instruction consists of teaching learners' strategies to "activate" their metacognition" (p. 7). Moreover, studies, e.g. Dignath & Büttner (2008) and Hattie, Biggs & Purdie (1996), evidence that metacognitive instruction enhances learning skills in students from primary school to university, which aligns with the age range of the participants of the Erasmus+ project. Research shows the relevance of meta-cognitive knowledge even at higher education levels, e.g. Lamar & Lodge (2014); Cummings (2015) and Ward & Butler (2019).

Finally, the work of Kuhn and Deane (2004) discusses metacognition as a "bridge between cognitive psychology and educational practice" (p. 268). In the context of delivering quality education, they propose that reliance should be less on the "standardized testing of basic skills, with higher and higher stakes" (p. 273), opting instead on focusing more on "the skills of

inquiry and argument" (p.273); thus concluding that professionals from the worlds of cognitive research and education "seem poised for meaningful collaboration" (p. 273).

2.1.2 Situating Metacognition: Contexts, Learners and Educators

Kloosterman and Taylor (2012) define learning as follows: "It's not a simple process that is easily planned and then just carried out step by step. There are many dimensions involved when people learn. Learning is about growing, about change" (p.9). Jean Piaget (1964) defines learning as being: "provoked by situations – provoked by a psychological experimenter; or by a teacher, with respect to some didactic point; or by an external situation" (p. 176). Schraw (1998) posits that metacognition is "domain-general in nature and teachable" (p.113). Findings from a meta-analytical study undertaken by Ohtani and Hisasaka (2018) evidence that metacognition is important in "educational practice" (p, 179).

2.1.2.1 Context: Non-formal Education

A lot of learning takes place within the non-formal context of youth programmes such as EU funded projects (Norqvist & Leffler, 2017). Youth workers, practising in non-formal education settings, have additional outreach opportunities with young people, such as through an Erasmus+ youth project which is the context of this study. Through such Vygotsky's social learning environments which enhance intrinsic motivation (Struyven, Dochy, & Janssens, 2008) and learning (Rovai, 2002), ideal opportunities can be created for the development of meta-cognitive skills. This becomes more relevant as young people belong to a society which is driven by learning and knowledge acquisition.

Youth workers foster an environment of learning and co-create knowledge with young people. On youth workers' role as educators, Rosseter (1987) writes:

> First and foremost, youth workers are educators. All other roles they may fulfil at certain times are secondary. The essential nature of their work is concerned with bringing about change. It is about moving young people on in some way from point A, not necessarily to Point B or C, but to some position beyond point A. It is about the development within people of knowledge, skills and feelings. It is this emphasis located within the work that delineates the educator role from all the others (p. 52).

2.1.2.2 Context: Formal Education

In the context of formal education, teachers' knowledge about what they need to teach for the 21st century plays an important role and they need to have updated and specific knowledge about the skills and knowledge that students need to learn for the future (Ulferts, et al., 2021). Metacognition is such a skill, e.g. Wilson & Bai (2010) and Hoskins & Deakin (2010).

The work of Wilson and Bai (2010) emphasises that in order to teach metacognition to students, teachers must have a "pedagogical understanding of metacognition … knowledge regarding effective instruction for helping students achieve a goal, in this case becoming metacognitive" (p. 270). As cited in Wilson and Bai (2010), the work of Clark and Graves (2005) supports the view that students would need examples of the application of the strategies and be guided as they try out these strategies. Pressley (2002) adds that students need to see the flexibility of such strategies and understand that strategies are implemented according to the purpose and demand of the task (reading).

Hattie and Timperley (2007) underline the importance and effectiveness of the teacher's feedback which, when given at the right instructional level, leads to the development of self-regulation abilities in students and subsequent adjustments to learning tasks or work. The work of Pressley and Hilden (2006) emphasises the importance of this knowledge for students to develop so they can know where and when to use them. Hattie (2012), states that it is important "to understand a student's strategies for thinking, so that he or she can be helped to advance his or her thinking" (p. 38).

2.1.2.3 Learners

The studies of Teng (2018) and Webb (1989) as cited in Teng (2020) evidence that "metacognition, referring to how learners self-regulate and monitor their learning, has been emphasised to promote learners' higher-order skills through peer interactions" (p. 551). Developing such new friendships and working/having fun together is an important aspect within the social and learning environment of youth projects. Moreover, this has additional relevance as adolescence is a crucial time and the optimal age for the growth of metacognition (van der Stel & Veenman, 2014).

Research shows that students can be taught metacognitive skills to improve their learning, e.g. Nietfeld & Shraw (2002) and Thiede, Anderson & Therriault (2003). Teaching metacognition can be one of the best ways to encourage students to stop to reflect on their own journey of learning and is central to promoting independent learning. Norman and Furnes (2016) write that from an early age, knowledge about metacognition can be taught and built from the primary school years, meaning that young students can develop awareness of the way they plan, monitor, evaluate and make changes to their own learning behaviour. They add that even though this is a very individual process, the teacher can enable this process by setting clearly the aims of learning, monitoring and evidencing the metacognitive skills of students while suggesting tools/methods, scaffolding and encouragement along the way. In this way, from a young age, students become aware of the way they learn and of learning strategies that work for them.

However, findings from Hattie (2009) evidence that many students do not possess the cognitive regulation and awareness of how they learn, which is sorely needed for academic achievement. From the perspective of teaching and learning, in a later study, Hattie (2012)

describes the process of metacognition as: “helping students to develop multiple strategies of learning” (p. 96).

The findings of Pintrich (2002) regarding students’ lack of knowledge about cognition are mirrored in a later study by Nordell (2009). Similarly, Nordell notices that freshmen within the context of learning biology in higher education, “often lack the self assessment skills and metacognition skills required to self-identify problems with their academic learning strategy” (p. 35). He refers to the previous work of Zimmerman (1998), who found that the successful implementation of study skills and learning strategies is “strongly correlated with academic achievement” (p. 35). He continues to note that programmes that facilitate the transition from high school to college mostly focus on the social aspect and do not address the academic component. The study aims “to present and access a model for teaching study skills strategies to help students self assess and diagnose their study strategies and then develop new successful studying strategies” (p. 36).

Workshops were organised for students to assess recall and to instruct on the use of various study skills strategies such as preparing for lectures, taking notes, reading textbooks, studying (e.g. using flash cards) and using concept maps. The importance of planning a schedule for study time and time management was also emphasised to students. Regarding students’ attendance to the workshops, a significant finding is that low achieving students were highly unlikely to attend such workshops, so “students who need the help the most are the least likely to seek it out” (p. 41).

Notwithstanding, the results of Nordell’s work are highly interesting, particularly in the context of this study. The findings evidence that as a result of attending a study skills workshop, students’ performance improved significantly during a second lecture exam, more than that of

students who did not attend the workshop. This indicates the potential of teaching study skills strategies to enhance academic performance, as most of the students who attended were already high-achievers and were seldom taught study skills. Improvement in student performance is also supported by studies in this area, e.g. Negretti (2012); Hargrove & Nietfeld (2015) and Wolters & Hussain (2015).

The work of Arum and Roksa (2011) evidences that students are not prepared for the higher academic demands and style of teaching at university. Subsequently, Larmar and Lodge (2014) found that when students do not possess enough "metacognitive capital" (p. 93) on entry to university, they are at higher risk of attrition. Within the same context of higher education, Pintrich (2002) shows surprise at the number of college students who have no knowledge on cognition on entering college. He found that students have little accurate knowledge on the way they learn, approach cognitive tasks and which cognitive strategies to use according to the task, thus requiring that metacognition is "explicitly" taught. He writes: "The key is that teachers plan to include some goals for teaching metacognitive knowledge in their regular unit planning, and then actually try to teach and assess for the use of this type of knowledge as they teach other content knowledge" (p. 223).

For students to become successful thinkers, Fogarty (1994) proposes three separate phases when tackling a learning task: devise a plan before starting a task, monitor understanding in order to use "fix-up" strategies along the way and evaluate thinking on completion of the task. Brame (2013) refers to a study by Tanner (2012) which presents a series of strategies for educators to teach students how to monitor their learning. Tanner's table entitled "Sample self-questions to promote student metacognition about learning" (p.115) addresses the three separate phases as proposed by Fogarty (1994). Brame condenses Tanner's questions into a shorter list of

questions (Table 1 below) which a teacher could pose to students to teach planning, monitoring and evaluating their learning for exam preparation. Such an approach is affirmed by the work of Bransford et al., (2000) who contend that "a metacognitive approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them" (p. 18).

Planning	Monitoring	Evaluating
• What strategies will I use to study (e.g., study groups, problem sets, evaluating text figures, challenging myself with practice quizzes and/or going to office hours and review sessions)? • How much time do I plan on studying? Over what period of time and for how long each time I sit down do I need to study? • Which aspects of the course material should I spend more or less time on, based on my current understanding?	• To what extent am I being systematic in my studying of all the material for the exam? • To what extent am I taking advantage of all the learning supports available to me? • Am I struggling with my motivation to study? If so, do I remember why I am taking this course? • Which of my confusions have I clarified? How was I able to get them clarified? • Which confusions remain and how am I going to get them clarified?	• What about my exam preparation worked well that I should remember to do next time? • What did not work so well that I should not do next time or that I should change? • What questions did I not answer correctly? Why? How did my answer compare with the suggested correct answer? What confusions do I have that I still need to clarify?

Table 1: List of Questions for Students (Brame, 2013)
Sourced from: https://cft.vanderbilt.edu/2013/01/thinking-about-metacognition

Other studies, e.g. Jacobs & Paris (1987), Schraw & Dennison (1994) and Flavell, Miller & Miller (2002), align with Fogarty's (1994) three phases and mention that metacognitive skills can be subdivided into three as per Tanner's (2012) questions above re planning, monitoring and evaluating,. Veenman et al. (2006) and Schraw (2001) posit that such skills reflect higher-order strategies as they regulate cognitive/motivational strategies in various learning tasks.

2.1.2.4 Educators

In the context of learning outside formal structures, Kloosterman and Taylor (2012) describe non formal education and learning as characterised by voluntary participation, curriculum is participant-centred, a source of learning is the group itself and assessment starts as a self-assessment exercise. Chauke (2022), cites Westera (2011) to state that through non-formal structures like youth work, young people are taught "problem-solving, reasoning and thinking skills that are fundamental for young persons' development" (p. 5).

Farrell, Iwa and Mikroyannidis (2017) mention that in non-formal learning contexts, instruction steers in the direction of more domain-general topics and they specifically name "'learning to learn'" (p. 2) as an example. They continue to state that in the context of "intragroup" (p.277) activities, findings indicate "that epistemological scaffolds produced more social, constructive metacognitive activity than either of the two other scaffolding conditions in all metacognitive activities except for task orientation" (p. 277). This ties well with the scaffolding (Vygotsky, 1978) techniques applied in the project and the conceptual framework of this study. However, they found that learners were not aware that their responses to the activities were linked to strategy and self-regulation. This finding is important in the context of this study as it shows that it is important for transfer of learning to occur, that learners participate in an adapted and facilitated reflection on the activities after their conclusion. This also echoes the work of Pressley and Hilden (2006) and Hattie and Timperley (2007) in the context of formal education on the importance of teachers' feedback for learners' adjustment and self-regulation of learning.

Finally, studies on socially shared metacognition are few. This is confirmed by the results of a study by Lobczowski, Lyons, Greene and McLaughlin (2021) which states that "this has led

to a lack of understanding concerning how groups construct metacognitive knowledge, skills, and experiences" (p. 1).

Within formal education contexts, teachers give direction of learning (Rogers & Freiberg, 1994). Pintrich (2002) found that metacognition has an important role in learning and contends that it is "a new category of knowledge in the revised Taxonomy" (p. 224). He emphasises the crucial role of teachers in developing metacognitive skills in students by fostering a learning environment that encourages students to reflect and become aware of their own thinking processes and learning strategies and argues that students' "self-knowledge is a critically important component of metacognitive knowledge" (p. 225). He notes that students who are aware of their own thinking and have the ability to monitor/regulate their learning are more academically successful. Accordingly, teachers should provide explicit teaching and model strategies so students can learn about metacognition and how they can be able to plan, monitor and evaluate their own learning. By providing feedback and guidance, students will be able to improve their metacognitive skills over time. This requires that teachers develop awareness of the role of metacognitive knowledge in the classroom. Confirmation of this is evidenced in the work of Krathwohl (2002) on the revision of Bloom's Taxonomy.

According to the work of Wilson and Bai (2010), teachers who have a good understanding of metacognition noted that it was necessary to have an "understanding of both the concept of metacognition and metacognitive thinking strategies" (p. 269) in order to teach them to students. This is supported by the work of Kuhn and Dean (2004) who state that "teachers would benefit from an understanding of mechanisms involved in metacognition and how best to foster it" (p. 268).

On the benefits of metacognitive awareness, Siegesmund (2016) found that teachers are encouraged to increase students' awareness and abilities to improve learning, especially in educational programmes that draw on literature on metacognition. Additionally, Umino and Dammeyer (2016) emphasise on the importance of metacognitive awareness in the realms of psychological well-being and social skills.

However, literature exists that shows teachers' lack of awareness about metacognition. Nordin and Yunus (2020), state that "teaching with metacognition is one of the neglected areas in school policy and practice" (p. 462). Consequently, given its importance, teachers would benefit from an understanding of metacognition and learn how to foster it with students (Kuhn & Dean, 2004), as there is a connection between the teachers' pedagogies to develop the metacognition of students and the metacognitive skills and knowledge of the teachers (Wall & Hall, 2016). Teachers' lack of awareness and knowledge on metacognition can be addressed by offering teachers training opportunities. In the context of teacher professional development, Prytula (2012) emphasises the importance of teachers being able to think metacognitively themselves and to be aware of metacognitive processes in order to teach students to be or think metacognitively.

2.1.3 Skill Development and Metacognition

Classic studies evidence many stage-based models of skill development e.g. Vygotsky (1978) - Zone of Proximal Development; Dreyfus & Dreyfus (1986) - Stages of Skill Acquisition and Alexander (2003) 3-Stage Model of Novice to Expert Transition. However, more recent models reflect accurately the development of metacognitive skills in the context of this study. Interestingly, one such example is Rosenberg's (2012) model which explains the development process of a learner or the acquisition of skills in four stages: novice, competent, experienced and

master/expert. The “novice” stage includes learners who know little or nothing and so must be taught in order to be able to perform to standard. The “competent” stage follows and places learners as having received basic instruction but whose skills are still developing. They still need attention or practise to perform better. In the next stage, “experienced” learners have developed enough skills to adapt their strategies to address unique and different situations along with the possibility of transitioning their learning from one context to another. When the final stage is reached, “master/expert” learners are now proficient enough to create new knowledge and strategies and are now able to teach others. At this final stage learning becomes a collaborative and peer-based social activity. Learners at this final stage learn from each other.

Rosenberg (2012) lists implications for this 4-stage model and one connects directly to learning how to learn. He states: “We must give learners the skills and tools to learn on their own or they will become too dependent on more-structured learning programmes when they should be evolving to independent learning. Focus on this as early in the learning path as possible” (para. 16). Figure 1 depicting the 4-stage model follows on the next page.

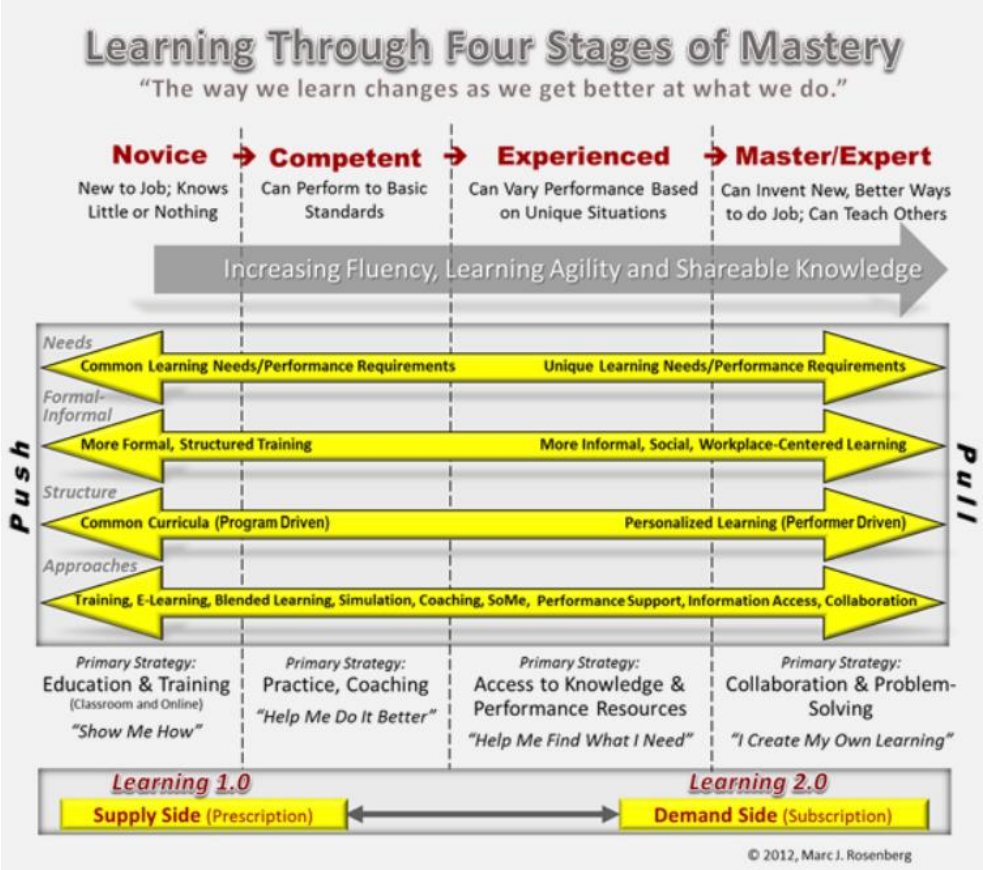

Figure 1: Rosenberg's (2012) 4-Stage Model of Novice to Expert Transition

Sourced from: https://www.learningguild.com/articles/930/beyond-competence-its-the-journey-to-mastery-that-counts/

In the context of this study, the development of metacognitive skills enables learners to take charge of their own learning, foster awareness on how they learn and how to evaluate their needs (Hacker, Dunlosky, & Graesser, 2009). When novice learners are taught such skills, they will have the possibility to progress through the four stages to reach mastery level. In this way they would develop the skills to eventually generate/adapt/implement strategies to meet these learning needs as mirrored in Rosenberg's 4-stage model above.

Norman (2020) confirms: "Being metacognitively active could involve being aware of metacognitive beliefs and knowledge and actively applying metacognitive strategies" (p. 2). This quote by Norman shows Rosenberg's transition from novice to mastery level and learners are

able to understand their individual and optimal ways of learning and eventually learn how to use/adapt strategies that work best for them. Self-confidence and self-efficacy follow when applying metacognitive skills. Learning strategies are considered to be key skills for lifelong learning and important as a goal to work towards in education (Kikas & Jõgi, 2016). Developing metacognitive skills will guide a young person to intentionally apply specific learning strategies to different situations, e.g. Berger & Frey (2015) and Bialik & Fadel (2018).

Schraw (1998) sums up metacognition as the "knowledge and regulatory skills that are used to control one's cognition" (p. 116) and further clarifies that cognitive skills are confined within domains that are specific while metacognitive skills "span multiple domains, even when those domains have little in common" (p. 116). The results of a study he conducted with Moshman (1995), found that initially metacognitive knowledge is confined within specific domains or tasks, but as metacognitive knowledge expands, students are able to build general metacognitive knowledge that transcends all domains in academia.

To this effect, Schraw (1998) "suggests that as students advance, they not only acquire more metacognitive knowledge, but use this knowledge in a more flexible manner, particularly in new areas of learning" (p. 117). This view is supported by Moses-Payne, Habicht, Bowler, Steinbeis and Hauser (2021) whose findings show that metacognition develops from childhood into adolescence. The passage from childhood to adolescence signals a period of substantial improvement in metacognitive ability and advice-taking while remaining unchanged in the period of late adolescence. The study used a "signal detection theoretic approach for the measurement of metacognition to be able to dissociate metacognitive bias from efficiency" (p. 9) and used "a perceptual decision-making paradigm with adaptive difficulty in order to fine-tune participants' levels of accuracy" (p. 9). The conclusions of the study evidence the maturity of

metacognition from childhood into adolescence through the development of skills in independent decision taking, thus adolescents are able to become better at judging their individual knowledge and relying less on advice which could be misleading.

A three year longitudinal study by van der Stel and Veenman (2014) found that metacognition continues to increase in adolescence. The participants were adolescents between the ages of 12 and 15. The researchers used history (studying of text) and mathematics (problem solving) tasks to explore the relationship between metacognitive skills and learning performance and if these are "intelligence related or relatively intelligence independent" (p. 117). The results of the study were obtained through yearly "intellectual ability tests" (p. 126) which were implemented during group sessions and "individual thinking aloud sessions" (p. 126) during school. The analysis of the data gathered over the three years showed that there was continuous growth in both intellectual and metacognitive skills with age, bar the third year when there was growth only in intellectual ability.

However, metacognitive skills are not only important in adolescence (Santrock, 2010) but also in the later years of "emerging adulthood" (Arnett, 2004). During these life stages, students are at a pivotal phase of cognitive ability and development. Metacognitive development assists in a person's ability to tackle learning tasks, according to Kuhn (2008) and thus helps improve the way in which students function and learn cognitively. Metacognition also includes the knowledge of strategies to learn better and to problem-solve. Jaleel and Premachandran (2016) describe these skills, strategies and tools that students can use to address questions such as: "How do I study best?" or "What kinds of tools help me learn?" (p. 165).

2.1.4 Applying Metacognitive Skills: Study Strategies and Tools for Learning

Metacognition enables individuals to evaluate their abilities/skills to tackle a specific task and apply the best study methods and tools (Sternberg & Kagan, 1986). A recent study by Ekuni, de Souza, Agarwal and Pompeia (2020) investigates the most common study methods employed by students in a developing country, Brazil. The researchers compared their findings to survey results from a previous study conducted in WEIRD (western, educated, industrialised, rich and democratic) countries. The aim was to "to investigate how people study to determine if there is room for improvement" (p. 1) and consequently be able to apply techniques to improve study practices. Their study found commonalities from the WEIRD and Brazilian (non-WEIRD) student cohorts who all chose "rereading, highlighting, and summarizing" (p. 1) as study strategies but the Brazilian students in the 2020 study added "working practice problems" (p. 1) to the other three strategies. Findings were not affected by socio-economic status and culture, however, there were some small differences related to the sex of the students.

Overall, the results confirm previous studies by Dunlosky, Rawson, Marsh, Nathan and Willingham (2013) and Rowland (2014) that "rereading, highlighting, and summarizing" are "ineffective techniques" (p. 2) for learning in the long term. Previous studies by Kornell and Bjork (2007), Hartwig and Dunlosky (2012) and Geller et al. (2018) offer possible reasons why these choices are made. They found that students report that they were not taught how to study and so tend to use strategies that they believe to be most effective based on previous experience (Koriat & Bjork, 2005). Ekuni et al. (2020) mention "metacognitive fallacies affecting our assessment of what we know, our tendency to seek easy ways of studying, and lack of adequate instructions from teachers" (p. 2) as reasons why students must be instructed on how to study (Pashler, McDaniel, Rohrer, & Bjork, 2008) for increased academic achievement (Brown,

Roediger, & McDaniel, 2014). In order to improve study practices, their recommendations include incorporating "more retrieval practice and other learning techniques that have been scientifically proven to be effective" (p. 12), adding that teachers and students must be taught why these techniques work and how to use them. They expressed their agreement with a previous study by Roediger and Pyc (2012) "who argue that many of these techniques are easy to use, are not costly, do not involve modifications in the content that is to be taught per se, and only require minor changes in time spent on teaching and studying" (p. 12).

Simpson and Nist (2000) conducted a review of literature on strategic learning and their findings showed that students need to be explicitly instructed on study strategies, vis-à-vis choices of strategies according to different contexts, and monitoring their application for the successful implementation of these strategies. This is supported by the findings of a more recent study by Dignath and Veenman (2021).

Often students usually rely on memorising by rote (Nist, 1993). McKeachie (1988) found that students would not have been previously taught about study strategies and they would have come across effective strategies by chance when they change their approach and find out that a method works better for them than others. Recent literature by Biwer, de Bruin and Persky (2022) continues to confirm the importance of teaching "effective learning strategies" (p. 147) to students even at university level. After attending a training programme called "Study Smart Program", the students "reported to use less highlighting, less rereading, but more interleaving, elaboration, and distributed practice after the training program" (p. 147). This confirms the findings of Ekuni et al. (2020) and previous studies cited within this sub-section.

2.1.5 Transfer of Metacognitive Skills

In education settings, the ability to transfer learning from one context to another is a valuable skill and educators are in a position to teach for effective transfer (Perkins & Salomon, 2012). This process is an essential one as it enables learners to apply knowledge, attitudes and skills in different domains. Transfer is important in education but requires promotion from educators; effort and practice from learners. Studies suggest that transfer can be enhanced through communication, reflection and metacognitive knowledge, e.g. Vijver & Brouwers (2009); Kilbrink & Bjurulf (2013) and Kim & Byun (2013).

Scharff, Draeger, Verpoorten, Devlin, Dvorakova, Lodge and Smith (2017) note that "the ability to transfer learning to new situations lies at the heart of lifelong learning" (p. 78). A number of research studies show that metacognitive skills are task-general, i.e. can be applied to a variety of tasks and learning contexts once they are learnt, e.g. Schraw, Dunkle, Bendixen, & Roedel (1995); Veenman, Elshout & Meijer (1997); Schraw & Nietfeld (1998); Veenman & Verheij (2003) and Donker, de Boer, Kostos, Dignath-van Ewijk, & van der Werf (2014). Transfer happens when what one learns in one context results in an improvement in performance in another context (Perkins & Salomon, 1989) and research by Gentner, Ratterman, and Forbus (1993) indicates that the more similarity there is between two tasks, transfer is more likely. Schuster et al. (2020) cite Chomsky (1957) to explain:

> Tasks can be differentiated in terms of their surface and depth structure. The features or properties of the task, such as the topic, characterize the surface structure of tasks. The depth structure of tasks describes the relationship between the elements of a task that are relevant to the processing and the solution of the task. Transfer occurs when learners recognize the depth structure of the source area (p. 460).

Leat and Lin (2003) citing a study by Mayer and Wittrock (1996) define transfer as: "when a person's prior experience and knowledge affect learning or problem solving in a new

situation" (p. 46). They add that there are four ways of transfer according to Mayer and Wittrock: "General Transfer of General Skill; Specific Transfer of Specific Behaviour; Specific Transfer of General Skill and Metacognitive Control of General and Specific Skills" (p. 386). They describe the final option in the ways of transfers as the "most promising" (p. 386) since it unites elements from the other three and thus emphasises the connection between metacognition and transfer. To present a different take on transfer, they cite the work of Hatano and Inagaki (1992) who draw on the work of Gentner and Stevens (1983). In their study they "contrast 'routine experts', who can apply set procedures, with 'adaptive experts', who have conceptual knowledge of the major objects in a domain or topic" (p. 386). They contend that the latter, with the advantage of conceptual knowledge, will have the ability to run "mental simulations, or models" (p. 386) to predict simulations for inexperienced situations, thus facilitating transfer to next contexts.

Chick (2013) cites studies by Bransford, Brown and Cocking (2000), Palincsar and Brown (1984) and Scardamalia, Bereiter and Steinbach (1984) who found that metacognitive practices are central to increase the ability of students to transfer or adapt their learning to new tasks and contexts. This is possible because students achieve the ability of developing an awareness that is not subject-specific. They are also able to perceive themselves as learners in various learning situations and contexts.

The work of Schuster, Stebner, Leutner and Wirth (2020) evidences that "training interventions for SRL foster the use of strategies and skills as well as their transfer to new learning tasks" (p. 455) and state that metacognitive skills are "task-general and transferable to a wide variety of learning tasks" (p. 455). Their research investigates whether these skills are transferred spontaneously and how this transfer can be supported. They cite Perkins and Salomon (1988) who identify two paradigms of transfer: "near transfer occurs when tasks are similar in

depth structure" (p. 459), transfer of training tasks similar to the learning tasks, while "far transfer refers to a depth-structural dissimilarity between tasks" (p. 459), when transfer of metacognitive skills is possible but without the same cognitive strategy, as per diagram which follows, sourced from Schuster, Stebner, Leutner and Wirth (2020, p. 459).

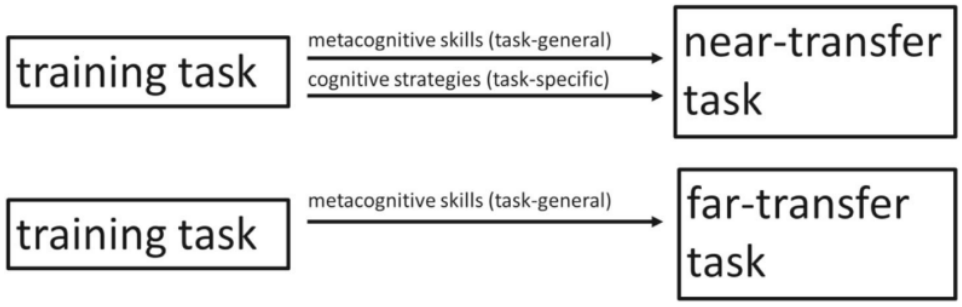

***Figure 2**: Near and Far Transfer Diagram*
Sourced from: Schuster, Stebner, Leutner & Wirth (2020, p. 459)

The context of the study is the training of over 200 students to test for the far transfer of metacognitive skills from the training setting to the learning tasks (near transfer) within the framework of SRL which requires three components: cognition, motivation and metacognition (Schraw, Crippen, & Hartley, 2006). The study confirms that hybrid-training improved the transfer of near and also far metacognitive skills, as it was previously held that transfer was only possible in the context of near transfer. However in the context of SRL and metacognitive skills transfer from one context to another, Veenman, van Hout-Walters and Afflerbach (2006) state that it remains an open question in training evaluations whether students are able to transfer knowledge and skills to different learning contexts. Within SRL, task-specificity is central to the transfer to different learning contexts and tasks. This is supported by a study by Neuenhaus, Artelt, Lingel and Schneider (2011).

A later study by Stebner, Schuster, Weber, Greiff, Leurner and Wirth (2022) claims that "the transfer of metacognitive skills seldomly occurs spontaneously" (p. 715). Their study investigated "whether students benefit from training metacognitive skills not only regarding metacognitive skill application but also regarding content knowledge acquisition in learning tasks of different transfer distances" (p. 715). Their study lasted one full academic year and was conducted with 243 fifth-grade students who received either non-hybrid or hybrid testing for half the school year. They were split into three groups, two hybrids and one non-hybrid. Each group was trained in varying combinations of metacognitive skills training or specific cognitive skills strategy or motivational skills strategy. Hybrid training, i.e. combining metacognitive skill and cognitive skill training, was investigated for its effectiveness. The data from the students was collected through a number of assessments conducted at different points of the study which included a pre-test and post-test using Multi-Strategy Test (MST), which uses a series of fictitious vignettes presented to students so they can describe how they would approach this learning task. The findings show that transfer of metacognitive skills in the context of spontaneous metacognitive skill transfer was successful in near and far transfer through hybrid training on metacognitive skills. However, in the case of the acquisition of content knowledge through hybrid training, this was only successful in the case of near skill transfer.

In his paper, Pintrich (2002) discusses the added category for metacognitive knowledge to the new revised Taxonomy (Krathwohl, 2002). He refers to the classic work by Flavell (1979) which included three forms of knowledge: "strategy, task and person variables" (p. 220). When referring to strategies, he asserts that "students who know about the different kinds of strategies for learning, thinking and problem solving will be more likely to use them" (p. 222) e.g. learning strategies when studying and memory strategies to recall information. Similarly, thinking and

problem solving strategies are used when tackling various classroom tasks (Bransford, Brown, & Cocking, 1999). He confirms the findings of Bransford et al. (1999) to assert that "metacognitive knowledge of all these different strategies seems to be related to the transfer of learning; that is, the ability to use knowledge gained in one setting or situation in another" (p. 222).

To conclude, in the context of neuro and educational sciences, a recent study by Fleur, Bredeweg and van den Bos (2021) evidences that "we still need clear insights about what works and why" (p. 1), adding that not much is known about the lasting effects or effects of transfer of metacognitive training. In this context, they mention that there is literature to evidence near-transfer after executive function training in children but nothing to prove far-transfer, citing the work of Kassai, Futo, Demetrovics and Takacs (2019). Barnett and Ceci (2002) suggest that transfer of skills and knowledge is more difficult in situations such as when there is a different physical space or social context, when there is a significant time gap between the first and subsequent use of the skill/knowledge, and when domain of knowledge (e.g. from maths to art) or function (e.g. from play to academia) or modality (written sums to worded sums) is different.

2.1.6 Challenging the Usefulness of Metacognition

Thomas and McRobbie (2001) argue that there is an increased interest in investigating metacognition, following on the landmark studies by Flavell from 1976 and 1979. They state that, in particular, studies focus on whether interventions to increase students' metacognition could lead to improving learning outcomes, as evidenced by White (1988). In fact, studies, e.g. Baird & Mitchell (1986) and Baird & Northfield (1992), show that when metacognition is enhanced, it can result in improvement of learning.

A study by Thomas and McRobbie (2001) was conducted to gauge students' meta-cognition and their learning strategies in the context of a chemistry classroom. They explored the

different strategies to learning, e.g. surface learning and deep / achieving learning and how these strategies affect the understanding and academic achievement of students. The study used qualitative data (interviews and journals) to analyse the metacognitive processes of students before and after an intervention, i.e. the effect of "an intervention using the metaphor "learning is constructing" on students' metacognition and learning processes" (p. 222). However, after the intervention not all students developed increased metacognition and experienced a revision of their learning processes. Three cohorts were identified: (i) students who experienced a revision and increased awareness of past/present thought processes, intentional application of their revised metacognitive knowledge and were more willing to exercise control over their learning processes; (ii) three students who were successful at acquiring vocabulary to describe their learning process, "reported increases in their self-concepts as thinkers" (p. 232) and "intimated that the intervention had been beneficial for them (p. 233); (iii) students "showed little or no evidence of change in their metacognition or learning processes as a result of the intervention" (p. 233). This result needs to be viewed also in terms of "contextual factors" (p. 222) which was found to have an impact on the predisposition for the enhancement of metacognition and processes of learning.

In the context of SRL, Zimmerman and Moylan (2009) state that in addition to the knowledge of strategies, there is the element of motivation in using metacognitive skills. They argue that a student might not be aware that a strategy may be applied in a new situation. Moreover, they cite the work of Rabinowitz, Freeman and Cohen (1992) to state that the motivation to use a strategy might be affected if students "did not feel its outcomes were worth the effort" (p. 299) or did not enjoy using it previously.

The work of Norman (2020) outlines "three ways in which metacognition may reduce cognitive achievement and psychological well-being" (p. 1) and lists three suggestions:

> (1) metacognition may actively interfere with task performance, (2) the costs of engaging in metacognitive strategies may outweigh the benefits, and that (3) metacognitive judgements or feelings involving a negative self-evaluation may detract from psychological well-being (p. 3).

Norman posits that sometimes it makes more sense to tackle a task without an "effortful metacognitive strategy" (p. 4), as it is more helpful and "could lead to higher subjective well-being simply because it would be less straining/demanding" (p. 4). Although the implementation of some strategies are automatic, the application of metacognitive strategies "is likely to require some degree of initiative or effort" (p. 4), which could make a task seem more difficult and challenging, thus outweighing the benefits. Finally, she cites Tarricone (2011) who contends that their own metacognitive beliefs could lead a person to evaluate their own self-worth and capabilities. She adds that should a person assume that they have less cognitive ability than others, this would lower self-esteem and self-efficacy, which in turn would lead to a lack of effort and motivation to perform a certain task. The belief that others are more "gifted" (p. 4) would have the same negative effect.

2.2 Pedagogies

Professional youth work within non-formal contexts draws on various pedagogies (Eichsteller & Holthoff, 2011). This view is supported by the Council of Europe (2008), confirming that "youth work is understood as a pedagogic practice that supports the 'young people's full enjoyment of human rights and human dignity'" (p. 3). Thus, to reach the Erasmus+ project's intended aims, a number of pedagogies were used to create opportunities for the youth participants to learn about metacognition and to develop metacognitive skills.

2.2.1 Project-based Learning

Project-based learning "is a teaching method in which students learn by actively engaging in real-world and personally meaningful projects" (Buck Institute for Education, n.d.). Research by Kim and Lim (2018) discusses the benefits of collaborative project-based learning (CPBL) and the concepts behind socially shared metacognitive regulation (SSMR), which is the context of the Erasmus+ youth project. Karpudewan, Ponniah and Zain (2016) as cited in Kim and Lim (2018) note that CPBL "is a pedagogical method that aims to facilitate students' inquiry and knowledge gain for intellectual goals" (p. 194). Through CPBL students participate in a team project which is open-ended and which needs continuous collaboration to achieve the desired outcome. CBPL is useful to improve the understanding of content knowledge through the process of investigating collaborative problems from real life (Blumenfeld, et al., 1991).

In the context of youth work, Corney, Marion, Baird, Welsh, and Gorman (2023) state:

> While there are differences in the way professional youth work is delivered across countries and jurisdictions, there appears to be an agreed underpinning pedagogical framework, often referred to as *social pedagogy*, which is commonly applied, and informs the practices and programs delivered to the diverse and complex young people who benefit from them (p.1).

2.2.2 Circle Time/Learning Circle

Another pedagogy used was the learning circle or circle time (Camilleri & Bezzina, 2021). This is "a common-sense approach for both conducting meetings and facilitating less formal gatherings in a way that encourages high involvement of all stakeholders" (Norton, 2003, p. 285). Studies evidence that this is a pedagogy used successfully in various contexts: e.g. Wade & Hammick (1999); Rowell, Polush, Riel & Bruewer (2015); Beck & Purcell (2017) and McEachern, et al. (2022). Wade and Hammick (1999) state that "action learning circles offer students the opportunity to become action enquirers. This is a continuous process of learning

from experience through reflection and action, with the support of a group or 'set' of colleagues or students, whose make-up remains constant" (p. 164), thus drawing on the work of Kolb (1984) on the importance of reflection on an experience and what Burnard (1986) subsequently termed experiential learning.

Freire was responsible for taking learning out of the classroom context and created the "'culture circle', where learners used their own ways of speaking to articulate their shared understanding of how their world came to be like it and how to act to change their future" (Rugut & Osman, 2013, p. 25). Thus, a learning circle becomes a tool that opens up a space for all stakeholders to speak, listen and participate in activities such as discussions. It is a space where participants can observe, reflect and experience not only their own perspectives and feelings but broaden their own perspectives by listening and considering the viewpoints of others. A learning circle is anti-discriminatory, democratic and equitable; all participants can see each other and make eye contact, facilitating effective communication. In the context of a study circle, Bjerkaker (2014) describes a learning circle as "a democratic and emancipatory method and arena for learning" (p. 260) and sums it up in three words "learning by sharing" (p. 265).

The end of each learning circle/meeting within the Erasmus+ project involved the evaluation of learning at activity end, drawing on the work of Dewey (1938) and Kolb (1984) on experiential learning, i.e. learning through reflecting back on the experience. This was implemented using the frameworks of two critical thinking tools: Plus Minus Interesting (Gillard, 2012) and The 6 Thinking Hats (de Bono, 1985). This was done verbally when meetings were held in person or using an online application, Padlet® (https://padlet.com), when meetings were held on line. Processing and evaluation were given the utmost importance as these

presented opportunities for the youth participants to think back on their learning and the "what" and "how" of their learning.

2.2.3 Learning by Doing

Project-based learning includes a number of hands-on activities, which serve to encourage engagement and enhance learning through planned activities which target learning outcomes. Ekwueme, Ekon and Ezenwa-Nebife (2015) define the hands-on approach as: "a method of instruction where students are guided to gain knowledge by experience. This means giving the students the opportunity to manipulate the objects they are studying" (p. 47). Hackathornal, Solomonb, Blankmeyerb, Tennialb, and Garczynskib (2011) mention "active teaching" (p. 40) as "any technique that involves the students in the learning process" (p. 41) and mention examples as discussions, quizzes, field trips and games.

The practical and hands-on work done during the project activities was an important component as it seeks to unite the "hands-on" with the "brains-on" (Millar, 2004), thus leading to improved problem solving/critical thinking skills and effective learning (Yu, 2015).

2.3 Students' Perspectives on Metacognition

During adolescence, "biological changes in the brain structure and connectivity in the brain interact with increased experience, knowledge, and changing social demands to produce rapid cognitive growth" (NSCC, n.d.). Moreover, these new abilities enable adolescents to introspect and make mature decisions that were previously beyond their abilities. Early adolescence is an important age for cognitive development. This age range is central for the development of own thoughts and formation of opinions on various topics. Additionally, through middle adolescence, a child develops thinking processes that are more complex and analytical skills. At this age thinking and questioning expands to include different possibilities. In late

adolescence, cognitive growth continues to develop into complex thinking processes which include from taking own decisions to increased thinking on wider issues such as politics and global concerns (Stanford Medicine, n.d.). There are two views on thinking in adolescence: the constructivist view, which draws on the work of Piaget and the information-processing view which draws on artificial intelligence. Improvements in the areas of basic thinking capabilities happen in five areas, namely: attention, memory, processing speed, organisation and meta-cognition (NSCC, n.d.).

In the context of this study, Piaget's work on "formal operational thought", argues that during the last of the Piagetian stages, a child develops the cognitive ability to reason not only beyond tangible situations and objects, but can also reason on abstract or hypothetical concepts (McShane, 1991). In the context of the youth project, the youth participants who fell within this age bracket were able to develop perspectives on their own metacognitive awareness, abilities and transfer. Martin, Sokol and Elfers (2008), define perspectives as "holistic orientations to situations, within which individuals coordinate their actions and interactions with objects and with others" (p. 294) citing the work of Jean Piaget and George Herbert Mead. The process of development of perspectives moves in stages from *prereflective* interactivity, to *reflective intersubjectivity* and finally to *metareflective sociality*. These stages of development start in infancy and early childhood, continuing through the ages of later childhood/adolescence and finally reaching mature adulthood. They contend that these socio-relational processes are an extension of Robert Selman's work on perspective taking and cite the work of Flavell, Piaget and Selman (among others) to state that perspective taking was "once seen to be a foundational activity for the development of self and other understanding in children" (p. 295). The seminal work of Mead (1934), as cited in Martin, Sokol and Elfers (2008, p. 298) states that "the self is

something which has a development; it is not initially there, at birth, but arises in the process of social experience and activity, that is, develops in the given individual as a result of his relations to that process as a whole and to other individuals within that process". This context is similar to the context of the social relationships and engagement with processes of metacognitive development within the Erasmus+ project.

A study on students' perspectives on the process of metacognitive calibration was conducted using qualitative methods by Gutierrez de Blume, Wells, Davis, and Parker (2017). As cited, according to Serra and Metcalfe (2009), calibration is what is referred to as a *feeling of knowing*, which Glenberg and Epstein (1985) term as "a process that expresses learners' ability to monitor their comprehension" (p. 4). The results of the study, based on the students' perspectives of their own calibration or *feelings of knowing,* obtained through student interviews, evidence that:

> Proficient calibrators were more aware of their cognitive strengths and weaknesses, and hence, better able to employ successful learning strategies whereas the shallow awareness of low calibrators led to poor evaluation of learning, and thus, poor strategy selection and use. (Gutierrez de Blume & colleagues, 2017, p. 12).

In the context of mathematics learning, Alzahrani (2017) used semi-structured interviews and classroom observations to explore the perspectives of teachers and secondary school students on metacognition and the role it plays in the learning of mathematics. Findings reveal that the perspectives of students on metacognition "was perceived as an awareness of thought and being able to judge its course in a positive way" (p. 529). In the context of this study, the way the students learnt was "transformed from a complete reliance on the explanation and solving of the teacher to them making efforts to search for knowledge and building upon it" (p. 529) as a result of practice of a "thought method … in accordance with the metacognitive questions". Central to this success is students' perspectives on the development of metacognitive skills. They mention

that the teacher should "hold knowledge on various styles of thinking in dealing with mathematics problems. Readiness, evaluation skills and the setting of suitable activities were also identified as important factors" (p. 529). They also add that it was important for the student to be looking for and building knowledge rather than waiting to receive it through memorising it from teachers. As a strategy, the students point out "the creation of work maps" (p. 529) which will enable them to monitor what they are thinking and provide support if they need to adjust and improve the way they are working. The need for students to be trained and well prepared was also noted by the students as well as for them to have a say in the evaluation of the way they think while having the support of a "mental work map".

Another study, in the context of tertiary education, by Teng (2020) was conducted with students of English writing within a course of English as a foreign language in China, to "explore the effects of each method on participants' writing, transfer ability, and metacognitive awareness" (p. 551). The students were supported through 2 metacognitive activities/methods, viz. group feedback guidance and self-explanation guidance. A control group was part of the study for control purposes having received no intervention at all. In the context of developing writing skills, Teng argued that "metacognitive support, which enables English as a foreign language learners to interact with peers, argue, rationalize, and negotiate to synchronize their arguments, is a crucial component of teaching writing to this population" (p. 551). The findings, extracted from journal entries, show that the Group Feedback Guidance "learners tend to exhibit different metacognitive regulation processes … [and] display a high level of task perception, and develop an awareness and use of metacognitive strategies" (p. 551). As cited in this study, the findings support previous research by Teng (2018) and Webb (1989) who found that meta-cognition is promoted through interactions with peers and through group work (Yarrow &

Topping, 2001). Most students from the Group Feedback Guidance stated that they used a strategic approach for the different writing tasks, paid attention to metacognitive skills and "expressed positive feelings about metacognitive awareness" (p. 562). Group work and peer interactions were the basis through which the youth participants of the Erasmus+ projects were exposed to developing metacognitive skills.

2.4 Conclusion

Metacognition has been a growing area of interest since the publication of Flavell's seminal works from 1976 and 1979. The aim of this chapter was to review theoretical positions and empirical findings to provide a background to this study and address the research questions, viz.

- What is the student's understanding of metacognitive skills?
- What are the student's views on the relevance and transference of metacognitive skills learnt in a non-formal setting to a formal setting?
- How relevant are metacognitive skills for the student?
- How are the skills learnt in a non-formal setting being transferred to a formal setting?

The literature discussed various studies and research findings in order to explore the concept of metacognition, its application in both formal and non-formal educational settings, its impact on student learning and transference from one learning context to another as per research questions above. A number of studies confirm the role of peer interactions, group work and the teaching of study/learning strategies to promote the development of metacognitive skills and transfer in students, e.g. Webb (1989); Yarrow & Topping (2001) and Teng (2020), which mirrors the social context of the youth project. They also emphasise the importance of teaching meta-cognition in educational contexts and the impact of metacognition on academic achievement e.g.

Baird & Mitchell (1986); Zimmerman (1998) and Baird & Northfield (1992), drawing on the learning environments of the participants of this study. The literature review also provides insights into how educators can support students in developing metacognitive skills e.g. by organising workshops to teach study and learning strategies since it was found that these benefit all students, even high-achievers. Researchers found a number of strategies that can be used to promote metacognition, e.g. reflective journals, concept maps, and mind maps. These tie well with the strategies employed within the Erasmus+ youth project.

Overall, Chapter 2 provided a comprehensive overview of the theoretical positions and empirical findings related to metacognition and offered insights into its significance for student learning. It presented the ways in which it can be fostered in non-formal and formal educational settings together with a number of good practices and strategies for learning evidenced in the studies. Significantly, literature published as recent as 2023, e.g. Loaiza, Patiño, Umaña & Duque (2023), evidences that, although educators are cognizant of the fact that metacognition is necessary for student learning, it is not always the case that they are equipped with the knowledge and skills to teach and apply it. Contrastingly, recent literature also exists to prove that although metacognition can be beneficial in multiple scenarios, it could potentially have the opposite effect, e.g. Thomas & McRobbie (2001); McCarthy, Likens, Johnson, Guerrero & McNamara (2018) and Norman (2020).

Chapter 3 follows with an overview of the research methodology and tool deemed to be the most suitable given the aims and purpose of this study. Data analysis and collection, participant anonymity, validity and reliability, ethical procedures followed and other considerations will feature in this chapter.

Chapter 3: Methodology

This chapter sets out the research methodology and tools used in this research study. It presents the rationale behind the design and tools chosen to address the research questions. This chapter also outlines the recruitment of the participants, the ethical considerations and the methods used for analysis of data. The credibility and trustworthiness of the study will be discussed, as well as the notion of reflexivity.

3.0 Rationale and Research Questions

The study aimed to develop an understanding of students' perspectives on the transfer of metacognitive skills from a non-formal education setting (Erasmus+ youth project) and to the formal education setting. The students' perspectives were obtained through individual interviews and the data was analysed using thematic analysis (TA).

The study addressed the following research questions:

- What is the student's understanding of metacognitive skills?
- What are the student's views on the relevance and transference of metacognitive skills learnt in a non-formal setting to a formal setting?
- How relevant are metacognitive skills for the student?
- How are the skills learnt in a non-formal setting being transferred to a formal setting?

3.1 Specific Epistemological Foundations and Salience of Qualitative Research to the Research Questions

Epistemology is the study of knowledge (Audi, 2010). It defines what knowledge may be acquired and communicated to others. This study is grounded in interpretivism (Willis, 2007). It bases itself on acquiring and interpreting meanings and understandings which are formed

through social realities and experiences in social contexts. The interpretivist research paradigm bases itself on the premise that there is no single reality or truth but multiple ones. Furthermore, this approach assumes that individuals have their own unique way of understanding concepts experienced and this ties well with the exploration of students' perspectives which necessarily need to be coded, analysed and interpreted.

Creswell (2009) contends that "qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (p. 4). Interpretivism as a research approach lends itself to qualitative research methodology in data collection (Nguyen, 2015). The interpretivist approach is reflected in the choice of using qualitative methods for data analysis such as TA (Braun & Clarke, 2006). The study aimed to "seek experiences, understandings and perceptions of individuals for their data to uncover reality rather than rely on numbers of statistics" (Nguyen, 2015, p. 24).

3.2 Method of Recruitment

This research design aimed to recruit eight to ten mixed-gender students aged between 13 and 25 years of age, of mixed ability, at various stages of their academic journey (some in secondary school, others in post-secondary and tertiary education) and who were participants in the Erasmus+ youth project. The number of the participants in the research was purposely set at between eight to ten students in the research design to support the principle of voluntary participation and to acknowledge that not each student who was participating in the Erasmus+ project was expected to participate.

The sampling selection had an important effect on the quality of this research. I approached the adult members of the youth group and asked for a volunteer to act as gatekeeper, for the recruitment of research participants. One member volunteered and approached the ten

Maltese project participants with verbal explanations and the information letters (Appendices 1 and 3) about the study and what their participation would entail.

Since she was a member of the youth group, she had access to the youth members in person, or during online meetings which were held using the Zoom® platform or through the group's private Facebook® group. She could also communicate with ease with all the potential participants of the study as she was also known to them. She was able to answer questions and provide the additional information that any group member might need. In this way, the youth members had enough information to be able to decide whether or not they would be interested in participating in the study. She emphasised that there will be no consequences if any of the students refrain from participating or withdraw their participation in the study and added that any decision will not compromise their participation in the Erasmus+ youth project. She explained that the study was not an evaluation of the Erasmus+ youth project *per se* but an exploratory and descriptive study about their individual perspectives and experience of the development of meta-cognitive skills throughout the project lifetime.

It was envisaged that should the minimum of eight participants not be reached, then recruitment would take place through the following channels: a social media (e.g. Facebook®) post on the page of the informal youth group "Dyslexic Teens Dialogue" (Appendix 4) and/or snowball technique. The criteria for the recruitment would be included in the call for participants so the aims and objectives of the study could be reached. Additionally, the recruitment of the students was purposeful as they were participants in the Erasmus+ youth project and members of the youth group "Dyslexic Teens Dialogue".

The students who showed interest to participate in the study were provided with the information letter (Appendix 1 and 3) which contained details on the study and how to contact me, viz. email address and telephone number. Subsequently, the students who were over 18 years of age and expressed interest to participate were supplied with a consent form (Appendix 3), while assent letters (Appendix 1) and parental consent letters (Appendix 2) were provided to students who were minors and their parents/guardians. Students under the age of 18 were asked for their written assent after obtaining the consent from their parents/guardians. The information letter, assent and consent forms were available in English and Maltese and those which were addressed to students under the age of 18 were written using teenager-friendly vocabulary.

3.3 Research Participants

Nine students were recruited by the gatekeeper and all were participants in the Erasmus+ youth project. Since the planned amount of research participants was reached, there was no need to recruit more students through social media or snowball technique. Once the signed assent/consent forms were completed and sent to me, a time was set up for the interview with each research participant separately.

In total there were eight female participants and one male participant. At the time of the interviews, all nine participants were aged between 15 and 23 years of age, two participants were attending secondary school, three were attending post-secondary institutions, four students were studying at tertiary level (three were under-graduates and one was reading for a master's degree). Table 2 on the next page, outlines the profile of the research participants.

Pseudonym	Education Level	Gender	Age
Janice	Tertiary (BA)	Female	18
Joanne	Secondary	Female	15
Kelly	Tertiary (BA)	Female	17
Abby	Post-secondary	Female	16
Liza	Tertiary (BA)	Female	20
Myra	Post-secondary	Female	17
Bettina	Secondary	Female	15
Laura	Post-secondary	Female	16
Luke	Tertiary (Master's)	Male	23

Table 2: Profile of Research Participants

3.4 Research Tool

The research tool consisted of an interview guide of ten open and closed ended questions (Appendix 5) which allows for space for the research participants to contribute more insights, e.g. Lichtman (2009) and Bryman (2012). The interview questions served as a guide to ensure relevance and uniformity (Cohen, Manion, & Morrison, 2017). This research tool is appropriate "to seek views on a focused topic" and for "investigating beliefs, attitudes and concepts of normative behaviour" (Hammarberg, Kirkman, & de Lacey, 2016, p. 499). Brinkmann and Kvale (2015) argue that "an interview is literally an inter-view, an inter-change of views between two persons conversing about a theme of mutual interest" (p. 5). The interview guide was drafted to address the research questions during the course of a semi-structured interview process and included a mixture of ten open and close ended questions. Semi-structured interviews enable a researcher to explore specific topics under study while space is allowed for participants to contribute new meanings (Galletta, 2013). Galletta continues to specify that questions can be drafted to allow the creation of a "considerable and often multidimensional streams of data" (p.

24), thus providing further insights into the lived experiences of the research participants. Each participant was thus able to present perspectives individually and without limitations to add richness to their perspectives. This was supported by the choice of qualitative research methodology as qualitative data analysis (QDA) serves to counteract pre-judgements as a participant's responses may be explored in full (Creswell & Poth, 2018). The data from the interviews was thus collected and subsequently thematically analysed to address the research questions.

3.5 Data Collection

Following the receipt of all signed assent/consent forms, all nine research participants chose to be interviewed online through Zoom®. Each participant was interviewed separately at a time which was convenient for each one. The Zoom® link was set up at the agreed time and sent by email or through social media platforms to each of the research participants. They were also informed that each interview would last no longer than 60 minutes, would be recorded (audio/visual) using a digital device (laptop) and that all recordings will be destroyed after 12 months from the publication of this study. Participants were given the option to conduct the interview in Maltese or English, in person or online. All opted for the interview to be held in English.

At the start of the interview I reminded participants that participation is voluntary and could be withdrawn at any point during the interview without explanation or repercussions. I explained that the interview is not an evaluation of the Erasmus+ project *per se,* as the aims and objectives of the study were to explore their perspectives about the development, relevance and transfer of metacognitive skills. The interviews lasted between 20 and 45 minutes. The Zoom® recording was downloaded and stored in a digital device (laptop) which was my property and

was password protected. I referred to the interview guide (Appendix 5) in the individual interviews and used probing so responses could be clarified and reproduced accurately as much as possible. Clarifications were given for any answers when asked and as necessary. At the end of the interview I added that should they wish to withdraw or delete any part of the interview, they could contact me as per contact details on the information letter.

Validity was given its due importance during this process as it "is about the closeness of what we believe we are measuring to what we intended to measure" and "reliability and validity are ways of demonstrating and communicating the vigour of the research process and the trustworthiness of research findings. If research is to be helpful, it should avoid misleading those who use it" (Roberts, Priest, & Traynor, 2006, p. 41). The interviews which were recorded through Zoom® platform were transcribed *ad verbatim*. I checked each transcript with the recording more than once to ensure accuracy and reliability (Perakyla, 1997). Each student was assigned a pseudonym to guarantee the anonymity of each contribution and any data which could identify the participant was omitted from the transcription (Creswell, 1998). Bryman (2012) asserts that "the identities and records of individuals should be maintained as confidential" (p. 136).

The interview process proved to be a positive and enriching experience for me as a researcher. The advantage of my dual role in this study also served for me to be passionate about the topic of this study, and curious to learn about the perspectives of the students on their learning experiences. The benefits of curiosity as part of the research process are evidenced in the work of Marques, Alchieri, and Fraguas (2022). When referring to Paulo Freire, they write that "epistemological curiosity is that which moves the search to understand the origins of knowledge" (p. 191).

3.6 Data Analysis

The transcripts of the interview were analysed using TA which allows for a high flexibility in ascertaining, analysing and exploring patterns of the data collected from the interviews and through which themes relevant to the research questions will become categories for analysis (Fereday & Muir-Cochrane, 2008). The usefulness and relevance of using TA in this study is outlined by Clarke and Braun (2017): "TA can be used to identify patterns within and *across* data in relation to participants' lived experience, views and perspectives, and behaviour and practices; 'experiential' research which seeks to understand what participants' think, feel and do" (p. 297). This mirrors the participants' experiences, the context and aims of this study and hence confirms the choice of using this methodology to analyse the perspectives which students expressed during the interview process.

The data collected was coded and thematically analysed (Clarke & Braun, 2017) to address the research questions. TA within interpretivist paradigm (Nguyen, 2015) is a salient and valid method to investigate and interpret the data thus obtained, as this method was employed in the peer review studies mentioned earlier in this chapter. Thematic analysis requires rich data which inherently contains depth and details, which would allow for the observations of each participant's attitude, feelings and behaviours (Smith, Flowers, & Larkin, 2009).

Braun, Clarke, Hayfield, and Terry (2019) and Braun and Clarke (2022) detail three different schools of TA *viz.* the reflexive approach, the coding reliability approach and the codebook approach. The approach being taken in this study is the reflexive approach which is associated with a fully qualitative paradigm. Morgan (2022) cites Braun et al., (2019) to assert that within this paradigm, "subjectivity is viewed as an advantage rather than something that needs to be avoided" (p. 2081). He continues to state that the process of coding follows after the

researcher would have examined the data (codes are not predetermined). Thus using an inductive approach (extracting meaning and identifying themes without preconceptions), as described in the work of Terry, Hayfield, Clarke, and Braun (2017), is an approach "grounded in the data" (Morgan, 2022, p. 2081).

TA requires a 6-step process which provides a clear and usable framework until a final report is obtained through "an organic approach to coding and theme development and the active role of the researcher in these processes" (Clarke & Braun, 2017, p. 297). The landmark paper by Braun and Clarke (2006) established the parameters to be used around TA and how to implement it in a systematic way. They viewed this methodology as one in which the researcher constructs meaning rather than identify it. They outlined the following 6-step method which was used in this study:

1. **Familiarisation:** Reading and re-reading the transcripts to become familiar with the data while looking at it as a whole and jotting down first impressions.
2. **Generation of the initial codes**: Reducing data into usable chunks of meaning and highlighting parts of the text to apply labels (codes) that describe the type of content. According to Braun and Clarke (2012), codes are "the building blocks of analysis" (p. 61). Codes are assigned on a data driven inductive approach.
3. **Generation of themes**: Examination of codes and identifying patterns in them. Essentially multiple codes are grouped within a single theme. A theme is a pattern which emerges and is significant. Braun and Clark (2006) describe themes as "patterned response or meaning within the data set" (p. 82) that address the research question/s.

4. **Reviewing the themes**: This will ensure that the themes are relevant to address the research questions. It is important that there are no overlaps in themes or no sub themes and themes are supported by the data they are based on.
5. **Defining and naming the final themes**: This involves giving a descriptive and relevant name to the theme. It is important to encompass the meaning of the theme within the concise name given. Braun and Clarke (2012) advise that researchers must name and attach a definition to themes that have a single focus and address the research question/s.
6. **Creation of the report:** The final findings are presented with each theme described in detail as to frequency, presence, meaning and supported with examples from the data as supporting evidence. This will include a discussion which includes comparing and contrasting findings to literature.

An advantage of TA is that it serves the purpose to analyse large amounts of data and gives flexibility in generating and interpreting themes that are extracted from the data gathered. In a later paper, Braun and Clarke also highlighted its "flexibility in terms of research question, sample size and constitution, data collection method, and approaches to meaning generation" (Clarke & Braun, 2017, p. 297). Nonetheless, caution must be exercised to be aware of own positionality (Harré, 2012) and personal bias (Johnson & Christensen, 2010) while interpreting the data.

Contrastingly, the researcher's subjectivity may also produce inaccurate and obscure results. This was a central consideration for me throughout this study and to which I continually reflected upon. Reflexivity is an internal dialogue and critical self-evaluation of my position, views and preconceptions and how these might affect the research being conducted (Stronach,

Garratt, Pearce, & Piper, 2007). As I progressed with the interview process, the analysis of the data and the writing of this study, I continually drew my attention to be aware of my own values and perspectives which might permeate the study and its findings (Creswell, 2013).

3.7 Software as a Tool for Data Analysis

The work of Gilbert, Jackson, and di Gregorio (2013) provides an overview of the historical development of qualitative data analysis software (QDAS). They report how, "as early as the 1980s, qualitative researchers began to recognize the potential for computers to assist qualitative researchers" (p. 225). Fast forward a decade from their work, QDAS programmes continue to assist researchers to perform tasks such as transcribing, organising, exploring, interpreting and reflecting, and integrating data. The usefulness of using QDAS includes saving time, the ability to manage big amounts of qualitative data, flexibility and the freedom from manual/clerical tasks. However, disadvantages exist, e.g. one needs to factor in the element of time taken to learn how to use the software and also to be aware of concerns regarding depth and meaning of the results as expressed by the software.

As I wished to ensure that QDAS can be used successfully and produce accurate results in studies similar to this one, I explored a study by Gutierrez de Blume, Wells, Davis and Parker (2017). The researchers used a QDAS, NVivo®, to organise and code the data. According to Paulus and Lester (2020), "the three most robust and well-known packages were NVivo®, MAXQDA® and ATLAS.ti" (p. 421). The work of Santos, Monteiro, and Mata (2021) which makes use of individual interviews as a research tool is a recent example of qualitative research using MAXQDA® , in particular Document Portrait and The Code Matrix Browser, features available within QDAS. In view of this, to perform the tasks required to analyse the data collected through the nine online interviews, I used the 2022 version of MAXQDA® for

Windows® as a software research tool. Kuckartz and Rädiker (2019) confirm that "a central feature of MAXQDA® and all QDAS is the option of working with codes (categories) and assigning codes to selected parts of your data - be these words or passages of a text" (p. 4). Thus, MAXQDA® was deemed fit for the purpose of thematically analysing the data collected for this study.

3.8 Ethical Considerations

This study involves the participation of young people, so ethical issues needed to be taken into consideration (Lichtman, 2009). Ethical clearance was obtained from the Faculty of Education's Research Ethics Committee (FREC) and it provided guidance on how to adhere to the FREC guidelines throughout the whole research process (Appendix 6). Clough and Newton (2012) assert that ethical considerations are central to research as they ensure that studies are morally conducted, and the rights and dignities of the participants and the following ethical considerations were upheld.

The recruitment of the students took place through a gatekeeper who circulated the information letter about the nature and aims of the study and subsequently provided the assent/consent forms to the students/parents/guardians. The information letters contained a detailed description of the aims of the study, the purpose of their participation and a clause to inform that participants were free to withdraw from the study at any point in time without explanation (Halai, 2006). For students under the age of 18, parental/guardian consent supported the assent forms signed by the younger students (Powell & Smith, 2006). Participation in the study was on a voluntary basis and this was emphasised by the gatekeeper.

Moreover, I had a dual role in the study as I was also the coordinator of the youth group through which the students are exploring metacognitive skills during an Erasmus+ youth project.

The dual role of the researcher was explained to students by the gatekeeper at the recruitment stage to eliminate any psychological influences and obligations to participate. Thus, the research participants were informed that the Erasmus+ project was detached from the data collection and the research study. The former takes priority with the participants and there will be no conflicts of interest if any of the students decide not to participate in the study. Clarifications were given to both students and parents by the gatekeeper.

Given that I was also a participant in the Erasmus+ project, I was also an insider researcher in this study. It is pertinent to note that the role of an insider researcher has its advantages since insiders possess a wealth of knowledge relevant to the study and the students might have felt more comfortable and feel freer to talk during the interview process as I was known to them already (Denzin & Lincoln, 2000). Falzon (2012) contends: "[i]n as much as this may be criticised for lack of objectivity, insider research also has the potential to increase validity due to the added richness, honesty, fidelity and authenticity of the information acquired" (p, 129). Nonetheless, as a result of my insider position, I continually ensured I was vigilant and reflexive on the continual risk of blurred boundaries and the danger of imposing my own interpretative framework (Drake, 2010).

Since I am also the author and coordinator of the Erasmus+ project which is the context of this study, I involved the participation of a "critical friend" (Stenhouse, 1975). Kember, et al., (1997) refer to this role, as recommended by Stenhouse's original work, as a: "pro-active role through the building and maintenance of a partner relationship with the academics throughout their projects" (p. 463). This important ethical consideration is central to the impartiality of this study and for the elimination of any bias. Bias can be defined as personal preferences or predisposition without a basis of objectivity. The role of the critical friend also supported me to

counteract my emic perspective (Burtăverde, de Raad, & Zanfirescu, 2018) and my own influence as an insider researcher (Denzin & Lincoln, 2002).

3.9 Rigour and Trustworthiness of the Study

Qualitative research involves the collection and analysis of a mixture of empirical data such as interviews, the research tool used in this study. Once data is collected, qualitative researchers have a wide range of methods to interpret the data in order to achieve a better understanding of the topic and make sense of lived experiences and phenomena in specific contexts supplied by research participants. Since interpreting and analysing data could be a very subjective task, Johnson, Adkins and Chauvin (2020) write about the importance of rigour in qualitative research. They specifically emphasise the importance of a researcher's reflexivity, awareness of any biases and rationale for decision-making throughout the progression of the study, as critical to ensure rigour and trustworthiness of the research findings. With regards to trustworthiness within TA, Nowell, Norris, White and Moules (2017) provide a step by step guide to ensure trustworthiness. They run through each step of Braun & Clarke's 6-step model and add a detailed description of the method a researcher should use to ensure trustworthiness at each step.

In line with the above, I ensured that I continuously checked and revised my work of the transcription and coding process for correct reproduction of the research participants' words and the labelling of codes. The codes were refined to a final list and placed into themes which were named to represent faithfully their content. Once the report produced in Chapter 4 of this study was finalised, I rechecked the data sources by running a search using keywords in the original transcripts and through the MAXQDA® software that I used for the coding. I reflected on the choices I made in choosing the *verbatim* quotes for the findings and discussion and rechecked

the names of research participants for correctness. I continually reflected on my possible bias and dual role in my choices, however, including a critical friend in this study helped to provide me with another perspective regarding the reporting and analysis of the data in order to present the findings faithfully and analyse data objectively. This process ensured that this study adheres to the highest possible standards for rigour and trustworthiness.

3.10 Conclusion

This chapter served to outline the research strategy and data collection methods used in this study. The data analysis procedures, main ethical approaches and considerations and the reflexivity process surrounding this study were also included. Chapter 4 will present the main findings extracted from the semi-structured interviews. These will be analysed using TA and discussed in order to address the research questions.

Chapter 4: Findings and Discussion

Through the use of inductive TA of the data obtained from the nine semi-structured interviews, this chapter will explore the perspectives of the study's research participants on the transfer of metacognitive skills from the Erasmus+ youth project to their formal educational context. The data was collected through nine online interviews and this facilitates that researchers "explore in detail the experiences, motives and options of others and learn to see the world from perspectives other than their own" (Rubin & Rubin, 2012, p. 3).

Chapter 3, Section 3.3, evidences that the profile of all nine research participants of this study fulfilled the criteria for participation as they all were within the age range indicated in the design of this study and all were participants in the Erasmus+ project about learning to learn. Since information on the Erasmus+ youth project is in the public domain, as necessitated by the funding programme, names of research participants were replaced by pseudonyms to ensure non-identification throughout this study and to adhere to ethics policies. Additionally, any references which could identify any one of them were removed from the transcriptions. All nine research participants chose to be interviewed online. This contributed to the "equal environment assumption" (Harrop, Urquhart, Enkema, & Clifasefi, 2013) within which interviews were held.

This chapter will present findings categorised in four emergent themes which will be discussed, compared and contrasted with literature presented in Chapter 2 of this study. Themes were extracted from patterns that originated from the transcriptions of the nine semi-structured interviews and gathered groups of similar codes which address one or more of the research questions. The discussion is interwoven within the findings in order to organise the work in a clearer way as all the themes are connected and progress from one to another.

4.0 Emerging Themes

The following four major themes emerged which reflect the research participants' perspectives (Table 3 below). The sub-themes within the major themes contribute detail and insight to the theme being explored. Themes are connected and at some points overlap. Moreover, they show the development of the research participants' perspectives.

Theme 1	**Starting Point - Signposting Metacognition**
Sub-themes	
	Knowledge and Understanding of Metacognition
	Promoting Metacognitive Skills: • *Planning* • *Evaluating* • *Monitoring*
Theme 2	**Moving Forward - Time to Learn**
Sub-themes	
	Developing Metacognitive Skills
	Supporting the Learning Process (Adults & Peers)
	Facilitating the Learning Process (Activities)
Theme 3	**Along the Way - Time to Practise**
Sub-themes	
	Applying Study Strategies and Tools for Learning
	Perspectives on the Relevance of Skills
Theme 4	**Skills in Transfer - Real Life Experiences**
Sub-themes	
	Contexts (Non-formal and Formal)
	Transitions within School Contexts
	Perspectives on the Transfer of Metacognitive Skills

Table 3: Emergent Themes

To support the emerging themes, a number of excerpts from the *verbatim* transcripts are included in the findings and discussion. The *verbatim* quotes are especially relevant to this study which explores the research participants' perspectives as they echo their exact words, thus presenting and emphasising their voice (Chandler, Anstey, & Ross, 2015). The *verbatim* quotes also ensure "thick description" (Geertz, 1973) *viz*. the transparency in my coding and interpretation of the perspectives (Gilgun, 2005). Since this study draws on the research participants' perspectives, I refrained from adding "[*sic*]" to their *verbatim* quotes as this was their youthful and informal way of expressing themselves. I felt that pointing out any grammatical errors would diminish the research participants' representations and I wished to reproduce "the participants' own words as generative of meaning and knowledge" (Chandler, Anstey, & Ross, 2015, p. 1). Morrow (2005) affirms the positives attached to the inclusion of participant quotes and states: "An overemphasis on the researcher's interpretations at the cost of participant quotes will leave the reader in doubt as to just where the interpretations come from" (p. 256).

4.1 Theme 1: Starting Point - Signposting Metacognition

The Erasmus+ project's aim was to create opportunities for the research participants to develop metacognitive skills. The first theme sets the scene for the research participants' exploration into metacognition starting at the "novice" stage and arriving at the "master/expert" stage as per Rosenberg's (2012) model cited in Chapter 2. The theme analyses their perspectives on the knowledge and understanding of metacognition by taking them back to the start of their participation in the Erasmus+ project.

4.1.1 Knowledge and Understanding of Metacognition

The research participants expressed varying levels of knowledge and understanding about metacognition. Some of them had heard about the concept of metacognition (learning to learn) before the project, according to Dimmit and McCormick (2012) the word "metacognition" was being used in education settings, while others were introduced to it during the youth project. Janice remarked: "*I think I was introduced to it actually, during our Erasmus+ project because no one mentioned it before.*" Kelly stated that she had not heard of the term "metacognition" before the project while others e.g. Myra and Laura had heard of it but did not have a clear understanding.

On the definition of metacognition, Janice remarked that in her opinion at the beginning of the project she was "*not exactly sure of the precise definition*" but she continued to state that it "*is learning to learn like finding out new study methods like we had done in our sessions."* Janice defined metacognition as: "*It's about being aware of how you learn and how you can improve your learning",* while Joanne posited: "*It is a way where you learn your best ways of learning, I guess, and the skills you acquire will help you in learning better and faster and quicker.*" As they progressed in their learning, the research participants understood that metacognition was a way to become aware of their best ways of learning (Hacker, Dunlosky & Graesser, 2009). They felt that they had become aware that developing metacognitive skills will help them learn better and get better results in exams.

Laura added that she perceived metacognition as a "*process*" and "*conscious*" where one thinks about how they are thinking and learning. Her use of the word "*process*" is significant here and echoes the description of "learning as an active process" (Wilson & Bai, 2010, p. 269). Hartman's (1998) work centred on the importance of metacognition and the students' accounts

evidenced that metacognitive skills were seen as helping them expand on the way they learn and make learning easier for them through different skills (Bettina). Luke explained: "*combine multiple resources that you know together.*" Luke's knowledge and understanding of metacognition also reflects Flavell's (1976) definition of "learning-relevant properties of information or data" (p. 232). Metacognition was understood by the research participants as important because it fosters independent learning, taking responsibility for your own learning and developing the skills needed to succeed in school and beyond, being "metacognitively active" (Norman, 2020, p. 2).

It is pertinent to note the *verbatim* quotes on the knowledge and understanding of metacognition (above) from one of the youngest when compared with the perspective of the eldest research participants, Joanne (aged 15) and Luke (aged 23), evidencing that metacognitive knowledge and understanding increases in adolescence e.g. Schraw (1998), van der Stel & Veenman (2014) and Moses-Payne, Habicht, Bowler, Steinbeis & Hauser (2021).

An interesting perspective expressed by Myra aligns with the work of Baird & Mitchell (1986); Zimmerman (1998) and Baird & Northfield (1992), and showed that she became aware that people learn in different ways: "*It's also exposed me to lots of people who are different types of learners … and I was able to understand that.*" The accounts contain various references to study and exam success as research participants seemed to connect metacognition mostly to the increased probability of academic success as evidenced by Abby's remark to "*achieve better marks in exams or even during homework*". Various studies support their perspectives regarding the possibility of increased academic achievement e.g. Baird & Mitchell (1986); Baird & Northfield (1992) and Zimmerman (1998). On the other hand, this could be seen as a limiting and narrow perspective from the research participants on metacognition as their learning

motivation could be linked solely to academic success and influenced by Malta's highly competitive education system (Buhagiar & Chetcuti, 2013).

4.1.2 Promoting Metacognitive Skills

Metacognition has a significant role in learning (Pintrich, 2002). The research participants expressed positive perspectives about promoting metacognitive skills and their relevance in learning. They believed that through these skills they would study better and thus achieve better exam results e.g. Baird & Mitchell (1986); Baird & Northfield (1992) and Zimmerman (1998). The accounts showed references to reflection on the learning process, evaluating their own performance and the importance of planning. Overall, the students linked the relevance and value of promoting metacognitive skills through acquiring and practising Fogarty's (1994) three phases.

Joanne shared that "*finding out the best way for you to learn, it would help motivate you because you are getting to learn quicker."* This is in line with the work of David McClelland (1987) on the achievement aspect of motivation and studies by Veenman et al. (2006) and Schraw (2001) on the regulation of motivational strategies in learning tasks. The research participants shared various insights and tips on how metacognitive skills can be used to improve learning. Some examples include problem-solving (Luke); evaluating (Liza, Myra, Laura), monitoring (Liza, Myra), reflecting on learning strategies (Liza), and giving/seeking feedback (Liza).

- ***Planning***

  Pintrich (2002) contends that it is imperative that teachers provide explicit instruction on metacognition and planning. The perspectives expressed by Janice, Liza, Myra, and Laura concur with this research evidencing that planning was considered an important

component of a metacognitive skill set. This draws on previous work of Flavell (1976) on the importance of metacognitive control (ability to plan). The research participants felt that it helped them save time (Liza, Laura); staying organised (Janice); or avoiding missing information or tasks (Myra). Janice mentioned: "*I think not just the study space. But I do a schedule, for example, and I think that is part of metacognition."* The importance of planning is evidenced in the work of Nordell (2009) regarding time management and scheduling. Accordingly, planning was viewed as central to allocate their time effectively (Liza), ensure that a task is finished in time and reduce stress leading to learning quicker (Joanne) and better academic performance. Tools for planning included a to-do-list (Janice); doing a schedule and organising a study space (Myra); The 6 Thinking Hats (de Bono, 1985) to plan essays (Bettina); and using logical thinking (Laura). However, this is not always the case and Myra expressed concern on one of the downfalls of lack of planning: "*I try to follow myself a plan a lot of times, but you know sometimes I'm not as rigid on myself as I should be.*"

- ***Evaluating (Reflecting)***

  Sternberg and Kagan (1986) write on the development of metacognition to enable students to evaluate abilities and skills to perform a specific task and apply the optimal tools/strategies accordingly. The research participants' accounts evidenced the importance that they placed on evaluation choosing between tools like Plus Minus Interesting (Liza, Myra, Bettina) or The 6 Thinking Hats (Kelly, Liza, Bettina, Luke). They voiced their opinions that through evaluation they will be able to assess their work (Joanne, Kelly, Liza) and identify what they did well and what they need to improve on (Myra, Laura). Evaluation also helped them to find mistakes and areas for improvement leading to better

performance and academic outcomes (Myra, Liza, Laura) e.g. using tools like flashcards (Kelly, Laura). They expressed that evaluation allows them to reflect on themselves (Myra), their own work and that of others (Myra, Liza, Laura), thus promoting metacognitive skills and improving their ability to critically analyse and evaluate information and task performance (Janice, Liza, Myra). Myra reflected: "*So maybe you could evaluate as well on your own studying in the course, like, maybe after the exam, you'd say, how did I go*?" and added that: "*after every Zoom meeting or after every day during the Malta and Italy week, we had also a PMI evaluation.*" She recognized the value of evaluation within promoting metacognition and Laura described evaluation as "*always a process cycle*". The accounts of the research participants highlight their views on the relevance of reflection and evaluation to improve learning and personal growth. This also concurs with the research on evaluation of learning conducted by Tanner (2012) as cited in Brame (2013) and Jaleel and Premachandran (2016).

- ***Monitoring***

  Norman and Furnes (2016) argue that even the youngest students can develop awareness of the way they monitor their learning. The research participants recognized the value of monitoring their learning as part of a process to improve their understanding and application of study strategies. Myra believed that monitoring helps her to use the right learning tools and methods according to her learning style while Joanne mentioned that giving time for information to "*marinate*" in her brain is her way of monitoring her learning for better understanding and to identify areas where she needs further clarification. Janice practised monitoring by making a to-do-list, "*so like I keep track*" while Joanne reviewed her work and found it helpful to "*give them some time*".

Likewise, Laura described how she monitored her learning by experimenting with different study techniques to see what will work best for "*those end of topic tests*". She mentioned experimenting with different study techniques, using monitoring skills to assess if a particular tool, e.g. flash cards, worked for revising a subject and if "*the end result was a positive one."* The monitoring processes described here by the research participants are in line with the work of Bransford et al. (2000) who contend that "a metacognitive approach to instruction can help students learn to take control of their own learning by defining learning goals and monitoring their progress in achieving them" (p. 18).

In conclusion, the perspectives of the research participants reflect the work of Tanner (2012) as cited in Brame (2012) and Jaleel and Premachandran (2016) that the planning, monitoring and evaluation of learning and tools and study methods for effectiveness was central to improve performance. Their self-questions reproduced *verbatim* in this study also echo some of the sample questions shown in Table 1 (Chapter 2, subsection 2.1.2.3), viz., Myra shared that: "*So, for example, I would look back and say, hey, did I learn this? ... or ... Am I just doing this for nothing? You know, like you always mentioned how you could spend 8 hours studying but if you don't know what you're doing, there's actually no point*." Likewise, Joanne: "*Sometimes I give it a week, and then I look at it and I say, okay, what do I remember from this? What do I understand? If I do not understand something I can always just ask, and I make sure that it helps me understand it better, cause I give it some time.*"

4.2 Theme 2: Moving Forward - Time to Learn

The second theme builds on the research participants' knowledge and understanding of metacognition explored in Theme 1. This theme takes their learning from the "novice" into the

"competent" stage (Rosenberg, 2012) and delves into their perspectives on development of metacognitive skills through engaging with adults/peers and participating in activities within the Erasmus+ project. This context reflects Vygotsky's (1978) learning processes whereby learning develops through the intervention of a "more knowledgeable other" (Vygotsky, 1978) in a social context.

4.2.1 Developing Metacognitive Skills

Norman and Furnes (2016) state that metacognition can be taught from a very early age. The development of these skills continues into adolescence (Moses-Payne, Habicht, Bowler, Steinbeis & Hauser, 2021), increases throughout adolescence (van der Stel &Veenman, 2014) and eventually "plateaued going into adulthood" (Weil et al., 2013, p. 264), reflecting the age range of the research participants (aged between 15 and 23 years). The vast majority of the research participants felt that they were able to develop metacognitive skills through the project activities, confirming that significant learning happens through non-formal education, such as the context of the youth project. This confirms the work of Norquist and Leffner (2017). Janice shared: "*I feel like I kind of learn better. I've been more able to absorb knowledge rather than just learn it for a night, and then forget it after the exam. And there's quite a few skills, I guess, like it's helped me improve my education in general as a whole*." Laura and Myra used the words "*conscious*" / "*consciousness*" to describe how the skills seemed to become part of their being and doing. Laura stated: "*So we're conscious of how we think and how we learn",* while Myra added: "*it is in my consciousness now, even more than before, about how I'm learning, you know.*" Their statements reflect the work of Gutierrez de Blume and colleagues (2017) who confirmed that "proficient calibrators were more aware of their cognitive strengths and weaknesses" (p. 12). Janice, a fresher at tertiary level education, affirms the work of Lamar and

Lodge (2014); Cummings (2015) and Ward and Butler (2019) and felt that "*as a whole I've grown as a person … the skills that I acquired.*"

A number of studies, e.g. Dignath & Büttner (2008) and Hattie, Biggs & Purdie (1996), show that metacognitive instruction leads to an improvement in learning skills in students. The perspectives of the research participants align with these studies as they mentioned specific skills they developed. Kuhn (2008) found that metacognitive development facilitates the execution of learning tasks. Bettina mentioned developing the ability to use flashcards, mind maps, online apps etc., while others (Janice, Kelly, Abby, Liza) focused more on the overall learning experience. However, they recognized that by understanding how they learn and use different learning strategies for different tasks, they were able to improve their overall learning experience and outcomes. The majority expressed the opinion that developing metacognitive skills helped them to become more organised, absorb knowledge more effectively and apply their learning beyond mere memorization.

Eight of the research participants felt the youth project enabled the development of metacognitive skills. However, one research participant, Luke aged 23 and reading for a Master's degree, felt he did not develop metacognitive skills through the project. He shared that: "*I knew how to learn, how to study and learn from before the project*." This account confirms that the development of metacognitive skills as "plateaued" in early adulthood according to Weil et al., 2013 or contrastingly challenges studies, e.g. Pintrich (2002) and Nordell (2009), which evidenced that students in higher education, similar in age to Luke, lack knowledge about cognition and study skills.

4.2.2 Supporting the Learning Process (Adults and Peers)

Many studies evidence learning as a social process e.g. Leat & Lin (2002) and Pirrie & Thoutenhoofd (2013) and learning in a social environment e.g. Lave & Wenger (1991) and Hall (2007). The research participants mentioned various persons who helped them develop metacognitive skills, through collaborating with their peers (Janice, Joanne, Bettina, Laura), working in groups/teams (Joanne, Kelly, Liza, Laura), hearing different perspectives from peers (Joanne, Liza), attending presentations prepared by peers (Kelly, Abby, Liza) and participating in group discussions with peers (Joanne, Kelly, Liza). Liza unified their common experience and goal as students to improve their ways of learning: "*We were all sort of experiencing school and studying, and having to do, like academic work, and we stayed discussing."* These perspectives resound with Vygotsky's (1978) work on learning from a "more knowledgeable other" (Vygotsky, 1978), who could be adults and peers in the context of the youth project.

The benefits of peer teaching and learning are well documented in various studies, e.g. Rubin & Herbert (1998) and de Vreede, Warner & Pitter (2014). The *verbatim* accounts in this sub-theme also confirm the shared experience of learning, the benefit of learning from a "more knowledgeable other" (Vygotsky, 1978) and the use of scaffolding techniques. Teng (2020) builds on studies undertaken by him in 2018 and by Webb in 1989 to confirm that engaging with peers promotes metacognition through the development of higher-order skills. Laura mentioned the importance of collaboration and teamwork, "*my peers also taught me*", she added that different roles were assigned and members of the team supported each other. "*I would have someone writing down, and someone evaluating what we're writing and correcting*." This aligns with the work of Yarrow and Topping (2001), who found that metacognition develops through engaging and working in a group with peers. Joanne saw the benefits of working with peers:

"*different perspectives and point of views … I think that's helped cause you get more ideas and more tips*." About engaging with peers, Bettina added: "*They really helped me learn better.*"

Janice summarised her experience within the project: "*I feel like personally, what worked best was the fact that we were all learning together. It wasn't a matter of some people already knowing, some others not knowing, and me feeling like there are people that know more than me.*" She added that she felt supported within the project team as she was "*with people who I considered my friends*". Liza added: "*Even though I was older than some people, it doesn't mean I taught them things. I also learned from them. So it's worked both ways.*" Both accounts from Janice and Liza reflect McClelland's (1987) motivational needs for association and achievement as they felt they learnt through teaching/learning activities with a "more knowledgeable other" (Vygotsky, 1978) who were also their peers.

Janice, Bettina and Laura also mentioned the contribution of the adult members of the team as facilitators of learning e.g. Vygotsky's "more knowledgeable other" (1978) and the work of Rosseter (1987), Dennen (2004) and Kuhn and Dean (2004). Janice stated that: "*I feel like you, along with the planning team, helped me develop them, because had it not been you who kind of gave me this experience, and you know, when we were during the project with the Italians, told us to do these activities, I would have never bothered out of my own will*." Laura emphasised that it was "*through the encouragement as well of others. I wouldn't have gotten anywhere, I think, without support*." Liza viewed that the different age groups and abilities of the adults and youth participants working together served to enrich her experience as she reflected on her participation in the creation of the Year in Pixels leaflet: "*I think I did improve on how I learn because of the project. I got to have lots of opportunities as well like to create tools for other people like when I worked in the team to make the Year in Pixels leaflet*." This

reflects the positive learning environment generated by the project and the applicability of Vygotsky's social learning theories which form the framework of this study.

4.2.3 Facilitating the Learning Process (Activities)

The research participants mentioned various hands-on activities that facilitated their learning process (Dewey, 1938; Kolb, 1984; Ekwueme, Ekon & Ezenwa-Nebife, 2015). One such activity was giving workshops/presentations in person and online to peers in Malta and Italy (Joanne, Kelly, Liza, Abby, Myra, Bettina). Bettina thought that "*we sort of learned better about this thing that we were presenting*." Kelly and Liza had the same view since they had to research when tasked to prepare and deliver workshops on specific topics. Laura found that making and delivering PowerPoint presentations really helped her learning process: "*I started making power points during the project. So for me, learning how to make the PowerPoint as well as public speaking through speaking about my PowerPoint, or what was written on the PowerPoint … it was one of those skills where public speaking was involved*." Her account evidenced a stage-based model of skill development starting from "novice", into the "competent" and proceeding towards "master/expert" stage, following Rosenberg's 2012 model.

Participating in group discussions was expressed as another valid learning experience (Kelly, Joanne, Abby, Liza, Bettina). Joanne's take-home on discussions: "*When we had group discussions, that helped or when someone gave a presentation, and we would listen, and then we would all give our thoughts about it, and we start discussing it. We'd ask questions and we get answers, and then we would delve into it even more*." Joanne's account affirms the benefit of sharing perspectives within a learning circle (Bjerkaker, 2014) and the work of Hacker, Dunlosky and Graesser (2009) through which learners take charge of their learning, become aware of how they learn and evaluate their learning needs. This perspective also concurs with the experiential

learning cycle of Kolb (1984). Similar to Joanne, Kelly declared that, for example, discussions "*aided me in understanding the topics better and understanding the skills more, and how I can apply them to my area of studies.*" The transition in stages from awareness to application of learning is also reflected in the work of Norman (2020).

A number of research participants noted that they learnt better by participating in interactive activities / learning by doing (Dewey, 1938; Kolb, 1984; Ekwueme, Ekon & Ezenwa-Nebife, 2015) as it enabled them to delve deeper into topics and reflect on them (Yu, 2015). Janice said: "*I feel like multiple activities definitely help*." Janice, Kelly, Laura, Myra, and Bettina mentioned one particular activity, a public speaking course that was spread over a number of weeks in Malta and Italy where they were given different topics to discuss, brainstorm and eventually present to their peers in Italy. Bettina described the experience in this way: "*We actually did them [mind maps], and for different topics, and which then we carried with us to Italy to … sort of produce a PowerPoint presentation, and do it*" (Ekwueme, Ekon & Ezenwa-Nebife, 2015). They highlighted this experience as one which combined public speaking skills with metacognition and mind mapping. They viewed this activity as enhancing their overall experience and learning process. Bettina confirmed: "*All the activities were very interactive … the meetings that I remember the most are the ones in which we actually had to do something.*" Janice remembered the learning by doing hands-on activities to create mind maps which helped her learn better: "*We had diversity, and we had to use the pipe cleaners and the cardboard … to make a web, and then we joined the web together of the different topics … we split into different colours on each topic … it helps make you remember a lot more*."

Overall the frequent use of the word "*we*" throughout the perspectives expressed by the research participants reflects learning in a social environment (Lave & Wenger, 1991; Hall,

2007) with a "more knowledgeable other" (Vygotsky, 1978) and learning by doing (Dewey, 1938; Kolb, 1984; Ekwueme, Ekon & Ezenwa-Nebife, 2015). However a limitation needs to be included here because socially shared metacognition is an emergent field of study as evidenced in the recent work of Lobczowski, Lyons, Greene and McLaughlin (2021), which states that there still is "a lack of understanding concerning how groups construct metacognitive knowledge, skills, and experiences" (p. 1).

4.3 Theme 3: Along the Way - Time to Practise

This theme builds further on Theme 1 and Theme 2 as the research participants felt that they reached a further stage of metacognitive skill development by applying what they learnt in the previous stages at the "novice" and "competent" stages of Rosenberg's 2012 model within Vygotsky's social learning environment of the Erasmus+ youth project. As a result of arriving at the "experienced" stage and learning to apply the skills learnt from a "more knowledgeable other" (Vygotsky, 1938) and by participating in the activities of the youth project to their individual and group needs, the research participants felt able to reflect on their experience (Dewey, 1938; Kolb, 1984) and share their perspectives on the relevance of these skills. Janice mentioned: "*They've just become a part of me … rather than just be part of the project, like I absorbed them*" as she claimed that she not only learnt skills but how to apply and practise them during the project.

4.3.1 Applying Study Strategies and Tools for Learning

The importance of teaching "effective learning strategies" (Biwer, de Bruin & Persky, 2022, p. 147) continues to be evidenced in recent literature and in the accounts of the research participants in Theme 2. When recounting their perspectives on applying strategies and tools for learning, the research participants recognized the significance of effective study methods and

choosing/adapting them to their individual learning needs. They agreed that the youth project provided them with the opportunity to learn about these tools for learning and to develop these skills and strategies to apply them. Liza summarised the students' perspectives well when stating: *"… it's all how/what works for you as an individual, and what you find the best for yourself when you are learning things*." Her perspective is reflected in the work of Sternberg and Kagan (1986) who wrote that metacognition enables the learner to choose and apply the best study methods and tools.

The research participants shared various tips on applying different study techniques and strategies, they mentioned study tools such as flash cards (Myra, Bettina, Liza, Laura); mind maps (Myra), using Plus Minus Interesting (Gillard, 2012), for evaluation (Liza and Myra); reflecting on what works and what doesn't work for them in terms of studying and adjusting their approach accordingly (Liza); using The 6 Thinking Hats (Liza, Bettina, Luke); staying organised (Janice) and managing time effectively (Liza, Laura, Joanne). Their perspectives evidencing the choice of study methods and tools mentioned previously showed that they moved away from the "ineffective techniques" (Rowland, 2014, p. 2) of "rereading, highlighting, and summarizing" (ibid., p. 2). Could it be possible that they were already reaping the benefits of their newly developed metacognitive skills and exposure to the teaching about study methods and tools for learning? Findings by Simpson and Nist (2000) proved that the direct teaching of study strategies must be explicitly done for students to benefit and this was the aim of the youth project. This was confirmed by a later study by Dignath and Veenman (2021). Moreover, the choice of study strategy is crucial for long-term learning (Credé & Kuncel, 2008 and Geller et al., 2018 as cited in Ekuni et al., 2020). The perspectives of the research participants showed their individual choices as being varied and reflecting individual choices.

Interestingly however, Kelly, Joanne, Abby, Bettina, Myra and Laura mentioned effective note taking as a strategy to capture the key points and concepts that they needed to remember. Joanne specified summarising from notes given: "*I like to see the notes my teacher gives me, and make my own shorter notes*." Bettina mentioned that now, due to her participation in the project, she takes notes differently: "*They follow a specific pattern so it makes my learning easier. So instead of just writing whole chunks of texts, I write a small point, an arrow, and a small point, an arrow, and a small point that continues on that …*" However, challenging these strategies of note taking and summarising, Liza observed that often students are directed to make notes but her afterthought was: "*Well, maybe your making notes is not going to work for everyone*", which links with Hattie's (2009) work about the lack of awareness of students about how they learn and her acknowledging the importance of making the right individual choice of learning/study strategy for academic success, as per the work of Zimmerman (1998).

Applying critical thinking tools were really popular with many of the research participants. Kelly, Liza, Bettina and Luke mentioned using The 6 Thinking Hats (de Bono, 1985) to assess subjects and ensure their understanding. Within the context of project evaluation, Liza recalled: "*At the end of the project we went through The 6 Thinking Hats … we stayed seeing what worked in the project and what didn't*." Luke also applied this tool in a real life context out of the context of education and mentioned that he applies The 6 Thinking Hats (de Bono, 1985) when deciding whether to buy something or not.

4.3.2 Perspectives on the Relevance of Metacognitive Skills

A number of research studies evidence that metacognition improves academic performance e.g. Zimmerman (1998); Negretti (2012); Hargrove & Nietfeld (2015) and Wolters & Hussain (2015). The majority of the research participants' perspectives connected developing

metacognitive skills to their formal education context. According to them, metacognitive skills helped them learn better and faster and they would also improve their academic results. This could stem as a result of our highly competitive education system in Malta (Buhagiar & Chetcuti, 2013) and could have influenced their perspectives on the relevance presented within this theme. However, the connection between metacognition and improved academic performance in literature proves the research participants' perspectives right!

The students recounted that through the project activities they learnt how to choose, analyse their study methods and determine if they are effective (Credé & Kuncel, 2008 and Geller et al., 2018 as cited in Ekuni et al., 2020). Confirming the importance of effectiveness, Myra mentioned that: "*I'm actually making sure that I know what I am doing, using the right learning tools, especially for what type of learner I am*." Tools for learning mentioned above, e.g. mind maps, flashcards and critical thinking tools e.g. "Plus Minus Interesting" (Gillard, 2012) were found particularly relevant. Joanne explained the relevance of the skills acquired by stating that "*they helped me to learn faster 'cause I found the best way that I personally study and learn, so I'm understanding what I'm studying and what I need to do in an easier way*." Kelly observed that the skills she developed were "*extremely relevant, because with them I could assess a subject better*" and added examples of what worked for her, e.g. learning by association, memorization techniques and using tools such as The 6 Thinking Hats (de Bono, 1985), and flashcards. These perspectives also draw on the three phases of planning, monitoring and evaluating processes of metacognition as mentioned in the work of Fogarty (1994).

Bettina mirrored the perspectives of her peers on the relevance of skills and stated: "*I still use flash cards every day, making new ones for every little thing. I use my mind maps to help me plan*". Laura checked the relevance of methods by testing them first to make sure that they were

right for her: "*Exactly after I had a [youth] meeting I started testing them, so I would see if they would help. In fact, they did. I learned quicker, and it was easier to learn with them*" and her approach echoes Flavell's "person, task, and strategy" (1979, p. 907).

Meanwhile, Abby, who was in post-secondary education, agreed on the relevance of the skills expressed by her peers, Bettina and Laura. She felt she was at an advantage over other students at school since these skills are not taught at school. Her remark aligns with the work of Nordell (2009) which found that freshmen "often lack the self assessment skills and metacognition skills required to self-identify problems with their academic learning strategy" (p. 35) and the work of Pintrich (2002) and Larmar and Lodge (2014) as students are not taught about metacognition. Liza, as a tertiary level student, provided more detail on the relevance of the skills she developed: "*so it's not only helped the like academic part, it's helped in the personal development part of my course*" evidencing that metacognitive skills delve into the domain of SRL, i.e. "the cognitive, metacognitive, behavioural, motivational, and emotional/affected aspects of learning" (Panadero, 2017, p. 1) and the importance of metacognition at higher education levels (Lamar & Lodge, 2014; Cummings, 2015; Ward & Butler, 2019).

Interestingly, Abby reflected further on the students learning about metacognition and the role of the teacher to provide this learning. She believed that "*the teacher doesn't explain these methods or they didn't know about them.*" Liza continued to add with her view on the lack of guidance on study tools and methods from school: "*school hasn't really taught us because school usually teaches us … oh, read the notes."* The perspectives of Abby and Liza are in line with literature which found a lack of teachers' awareness (Nordin & Yunus, 2020) and understanding (Kuhn & Dean, 2004) of metacognition.

To conclude this theme, according to one research participant, Luke, the project did not provide him with any new skills or tools as he felt he had already developed awareness of what worked for him before joining the project. Nonetheless, he noted that "*every tool is relevant; it just depends on the person and the person's needs*." He expressed his opinion that participating in the project would have surely been "*helpful*" to the rest of the youth members as "*they got to understand about these skills, about how they could learn"* thus also evidencing that he believed that metacognitive skills are relevant.

4.4 Theme 4: Skills in Transfer - Real Life Experiences

This is the final theme, the end of the learning journey of the research participants as they felt that they reached the final stage of "mastery/expert" (Rosenberg, 2012) with enough experience to share their perspectives on the transfer of their learning and metacognitive skills. To situate and gain a better understanding on the two contexts of learning of the research participants, two subsections within this theme gather their perspectives on their learning experience within the non-formal and formal contexts between which the transfer of skills occurs.

4.4.1 Contexts (Non-formal and Formal)

The perspectives of the research participants reflected their real life experiences of learning in the different contexts of non-formal and formal education. Some of them noted the difference in both settings due to their life experiences therein. Liza expressed the collective feeling when she stated: "*We stayed discussing what used to work for us, what we don't like with the formal school setting, and how it has restrictions, and how these extracurricular sort of informal settings give us sort of freedom to learn in ways that we can't really learn in a school*". Interestingly, Liza expressed the words "*restrictions*" and "*freedom*" in her account to reflect the

collective (using the words "*we*/*us*") experience of learning. Similarly, Luke noted the difference between the two contexts and observed that: "*the Erasmus project gave lots of independence to the youth. However, school doesn't give that much opportunity for students in that way, since they need to stay teaching a large majority of people*." Their perspectives are in line with the opposing pedagogies of the "*restrictions*" of the "banking" (Freire, 1970) system in the formal education system and the "*freedom*" of SRL (Schuster, Stebner, Leutner and Wirth, 2020) experienced when learning is co-created through a "learning circle" (Bjerkaker, 2014) activities within the non-formal context of the youth project. According to Bjerkaker (2014) a learning circle is "a democratic and emancipatory method and arena for learning" (p. 260) and "learning by sharing" (p. 265).

The non-formal context of the youth project also allowed the research participants to hear different perspectives and learn in ways that were not possible in a formal school setting. Janice supported this view on the learning environment that the project generated for the students. According to her, it was a space where they could ask questions, receive tips from their peers and feel equal between them. Janice: *"... the fact that we were all learning together, I was able to ask questions, feel comfortable in my environment, so that if I don't understand something I let you know, kind of, even the fact that we used to meet once a week and kind of get close to each other, get to know each other. You know, it makes the environment ... the environment, I feel, makes a big difference in your learning*". The research participants appreciated the freedom to learn and interact with different ages and academic levels in the youth project. This echoes the work of Lave and Wenger (1991) who propose "situated learning" as learning being a social process and the work of Vygotsky (1978) on social learning.

4.4.2 Transitions within School Contexts

In addition to reflecting on the difference between experiences of learning in non-formal and formal education contexts, some of the research participants added their thoughts on their own real life experience of transitions within schooled environments. Overall, they acknowledged the differences in learning environments and the need to choose their learning strategies and tools accordingly. This is in line with the work of Simpson and Nist (2000) and Dignath and Veenman (2020).

Since the project lasted for 36 months, the majority of the research participants progressed and transitioned within formal education contexts. Janice shared her experience on transitioning from post-secondary to tertiary education: "*I went from learning a bit to having to learn much more and having to do much bigger assignments and tasks*." Similarly, Myra experienced moving from secondary school to post-secondary within the project lifetime, she observed that: "*There is a difference from first year when I was not in the youth project, and the second year*" and more so when she was required to use her own approach as part of independent learning at 6th Form. Kelly, Janice and Liza both transitioned from post-secondary to tertiary education, Liza recalled "*a lot has changed. I changed schools, I changed institutions … I have so much more volume, I had to adapt*", Janice shared that the workload increased considerably: "*I started university this year, since I'm still a first year, we went from writing 500 word essays to 1,500 … I went from learning a bit to having to learn much more and having to do much bigger assignments and tasks*." The perspectives shared about transitioning to different education contexts align with the work of Chick (2013) who cites studies by Bransford, Brown and Cocking (2000), Palincsar and Brown (1984) and Scardamalia, Bereiter and Steinbach (1984). However, to the advantage of the research participants, the findings show that metacognition

increases the ability of students to transfer or adapt learning to tackle new tasks/contexts even at tertiary levels of education, e.g. Lamar & Lodge (2014); Cummings (2015) and Ward & Butler (2019).

4.4.3 Perspectives on Transfer of Metacognitive Skills

Pintrich (2002) argues that "metacognitive knowledge of all these different strategies seems to be related to the transfer of learning; that is, the ability to use knowledge gained in one setting or situation in another" (p. 222). Janice, who started university during the project lifetime, hit the nail on the head when describing the transfer between the two contexts. When referring to Plus Minus Interesting (PMI in her words), she voiced that she was able to transfer "*from just a 'PMI' about our session with friends … for an actual essay or assignment.*" She viewed the transfer of skills as being one which she felt she could transfer from the bigger scenario of the youth project to the "*smaller level*" of her life as a student.

The majority of research participants expressed confidence in their ability to transfer the skills developed during the project and believed that they would continue to be valuable in their academic journey. Myra looked back on her participation in the youth project: *I was first introduced to the youth project … I really took into consideration, for example, how I could use it in a real life world … which was not something I was doing before so it was like yes, it did change*." Likewise, Bettina also stated this opinion on skills developed and their application: "*I see them in a different way, how I can apply them to my everyday learning*." The perspectives of Myra and Bettina support the work of Scharff, Draeger, Verpoorten, Devlin, Dvorakova, Lodge and Smith (2017): "the ability to transfer learning to new situations lies at the heart of lifelong learning" (p. 78) and that they are "task-general" (Veenman & Verheij, 2003; Donker, de Boer, Kostos, Dignath-van Ewijk, & van der Werf, 2014).

The research participants mentioned various skills, strategies and tools which they found that they could transfer from the youth project to the school setting, e.g. planning/monitoring (Joanne, Kelly, Bettina, Laura, Liza); transversal skills (Abby, Kelly), organisation skills (Janice), time-management (Joanne), interview skills (Liza); together with Plus Minus Interesting evaluation (Janice, Myra), note-taking strategies (Joanne), graphic organisers (Myra), flashcards (Laura, Bettina) and mind maps (Bettina, Myra). The various general and specific strategies and tools all fall within each of four ways of transfer according to the work of Leat and Lin (2003). Interestingly, one of the ways called "Metacognitive Control of General and Specific Skills" (p. 386), is especially relevant to this study as it connects metacognition with transfer of skills.

Focusing on skills that were not subject-specific, Joanne and Liza agreed that working in teams during the youth project helped them develop teamwork skills which they felt would be useful in their school team work and work attachments. Luke had the opinion that the public speaking course helped students learn how to use public speaking skills in combination with metacognition learning. Laura specified that she felt she was able to transfer, in particular the study methods and tools she learnt during the youth meetings to the school context with immediacy: "*Definitely, it helped. There were some subjects in school, in fact, exactly after I had a [youth] meeting I started testing them, so I would see if they would help. In fact, they did. I learned quicker, and it was easier to learn with them*."

Likewise, Joanne stated: "*I have tried using what I learnt in the youth project. So I listened to what was being said. I thought about it, and I tried using it, whatever it was. So I think what helps me a lot … I'm using different study methods for different subjects*." Liza perceived that the skills learnt helped her in various aspects of her academic tasks: "*It has helped*

me being more, sort of, outgoing … easier to present and this is good for my academics because I do have to do presentations. So it has helped in that setting." These perspectives mentioned here are in line with research that supports the ability of students to transfer/adapt learning to new contexts and tasks due to metacognitive practices, such as Chick (2013) who cited studies by Palincsar and Brown (1984); Scardamalia, Bereiter and Steinbach (1984); Bransford, Brown and Cocking (2000) and the work of Perkins and Salomon (1988) on the two paradigms of transfer (near and far transfer).

In conclusion and on a different note, one research participant, Luke, expressed some concern about a possible hindrance to the transfer of skills which is produced by the context itself. He voiced his perspective that the transfer of skills depended on the "*school environment*" stating that unlike the project which gave "*independence*" to learners, "*school doesn't give that much opportunities for students in that way*", implying that formal education settings could foster an environment which is non-emancipatory and which restricts the possible development and transfer of skills. His use of the word "*school*" may also have multiple interpretations. Is he referring to the system, context, teachers' awareness or teaching methods? Literature included in this study already focuses on some of these areas, more specifically on teacher awareness of metacognition (Nordin & Yunus, 2020) and use of pedagogies to plan teaching metacognitive knowledge (Pintrich, 2002). Barnett and Ceci (2002) also argued that transfer of skills could be more difficult in a different physical space/social context.

4.5 Conclusion

Chapter 4 presented the findings and discussion under the four main themes and sub-themes. The accounts of the research participants evidenced that the youth project's learning environment and implementation of the pedagogies through the project activities draw on

Vygotsky's social learning theories and this confirms the applicability of his work as informing and providing the conceptual framework to this study. Additionally, the majority of the research participants found that they were able to develop metacognitive skills, found them relevant to their learning and were able to transfer them from the non-formal context of the youth project to their formal school context.

Consistently, a research participant's perspectives did not always concur with the other eight and brought an essential critical stance into this study. Being the eldest and studying at Master's degree level, Luke (aged 23) felt that he had already developed metacognitive skills and was able to use study methods and tools according to his learning needs. This is also reflected in literature which suggests that metacognition develops from childhood into adolescence (Moses-Payne, Habicht, Bowler, Steinbeis, & Hauser, 2021), this "was highest in late adolescence and plateaued going into adulthood" (Weil, et al., 2013, p. 264), and at age 25 or older adult students achieved higher scores than pre-adults under the age of 25 in metacognitive knowledge and regulation, as evidenced by MacKewn, Depriest and Donavant (2022).

The next chapter is the final chapter of this study and will present the findings, together with the limitations, implications and recommendations, conclusion and a final reflection.

Chapter 5: Conclusion

5.0 Introduction

The Organization for Economic Co-operation and Development (2018) as cited in Mitsea, Drigas and Mantas (2021), lists cognitive and metacognitive skills as one of the three types of soft skills for the 21st century. Skills included were: "critical thinking, creative thinking, learning-to-learn and self-regulation" (p. 121). According to the researchers: "Humans stand out because they are able to become aware of their own cognitive functions, to monitor, regulate and adapt them appropriately in order to achieve even higher levels of self-development" (ibid., p. 124).

This chapter is the final one of this study and will hence present the main findings, the limitations of this study, and recommendations to stakeholders, suggestions for future studies with a final reflection.

5.1 Main Findings

This section provides the answers to the research questions based on the findings and discussion in Chapter 4. The perspectives expressed by the students during the online interviews were analysed and presented under four major themes which address the below research questions.

- What is the student's understanding of metacognitive skills?

  The students' perspectives on their understanding of metacognitive skills are grouped under Theme 1 (Starting Point - Signposting Metacognition) and Theme 2 (Moving Forward - Time to Learn). The students expressed varying levels of knowledge about metacognition, some were aware of the term before the project and others were

introduced to it during the youth project. However, the research participants understood that developing metacognitive skills fostered awareness of their best way of learning and the best study methods and tools for exam success. They also evidenced a good understanding on the processes of planning, evaluating and monitoring: essential components of metacognition. They felt that the various activities and persons helped them to develop metacognitive skills and that the project fostered a positive and valid learning environment.

- What are the student's views on the relevance and transference of metacognitive skills learnt in a non-formal setting to a formal setting?

  The findings expressed under Theme 3 (Along the Way - Time to Practise) and Theme 4 (Skills in Transfer - Real Life Experiences) address this research question. The research participants' perspectives indicated a number of study methods and tools that they learnt about/practised during the youth project activities that they found relevant to their formal education context. The research participants also felt able to transfer these strategies and tools from the context of the youth project to their school context. In the context of planning/monitoring/evaluation of knowledge, studying, writing assignments or preparing for an exam, evaluation tools such as Plus Minus Interesting (Gillard, 2012) and The 6 Thinking Hats (de Bono, 1985) were frequently mentioned and deemed as particularly relevant while study methods which were popular included flash cards, mind maps and taking notes. Their perspectives showed that they felt they were able to use study strategies and tools for learning since they had developed metacognitive skills (awareness on the way they learn).

- How relevant are metacognitive skills for the student?

  A sub-theme within Theme 3 addresses this research question directly. The majority of the research participants' views showed that they felt that they were learning better as a result of the application of the skills they developed as part of their learning in the youth project. They expressed that they were able to assess better what strategies and tools to use and their effectiveness. They mentioned a number of tips and ways of applying these skills. They felt they were in an advantageous position when compared to fellow students at school who did not have the opportunity they had through the youth project. As a result, they were learning better and faster and hence they felt that these skills were relevant to their studies. One research participant expressed that even though he had already discovered his optimal way of learning before the youth project, he agreed that metacognitive skills were relevant in the formal education context.

- How are the skills learnt in a non-formal setting being transferred to a formal setting?

  The research participants reflected on their education journey undertaken during the 36-month duration of the project and which are presented under Theme 4 (Skills in Transfer - Real Life Experiences). Some noted that as they transitioned through various levels of their formal school context the academic demands grew. However, they felt that they were able to transfer the skills because of their knowledge on the application of the various strategies and tools learnt. The transfer of skills became even more important as they had to upgrade their organisation and time management skills to deal with a new education context and/or a larger workload. They felt that they were able to learn from each other and even from younger/older participants of the project. A number of research participants shared good practices during discussions and workshops, some applied study

methods and tools learnt during a workshop immediately to their studies at school to try them out and check on their effectiveness and applicability.

5.2 Limitations to the Study

This study does not claim to be exhaustive with regard to the research topic as a number of limitations existed. Based on the design, aims and the findings of the study, the following limitations have been noted accordingly:

5.2.1 Dissertation Constraints and Design

The first consideration is the word count for a postgraduate MTL dissertation which limits the word count and hence the quantity and depth of the representation and analysis of the students' perspectives. A major disadvantage in qualitative data analysis is that few research participants are recruited. This is due to the rich data collected which needs to be analysed within costs and time constraints. In fact, the study analyses the views of only nine students who were participants in the Erasmus+ youth project. Thus, the results cannot be compared to find commonalities with similar groups (Denzin & Lincoln, 2002) or larger populations (Ochieng, 2009). However, the aim of this study was not to generate generalizable findings. Rather, it was to investigate in-depth experiences and perceptions of eight to ten research participants.

5.2.2 Research Participant Profiles

Research participants were culturally homogeneous, shared similar friendship circles and hailed from similar socio-economic and academic backgrounds. Since they were recruited from within the same Erasmus+ project, this might have given a slant towards their similarity (Tracy, 2013). Additionally, the study was not gender-balanced as there was only one male research participant however this was mirrored in the participants of the Erasmus+ project.

5.2.3 Personal Connections

Qualitative studies focus on meaning that people attribute to their lives and experiences, and I, as the researcher, was the "primary instrument for data collection and analysis" (Ochieng, 2009, p. 14). When engaging with research participants whose ages started from a young age of 15 years, the influence perceived by them in my regard as project leader cannot be dismissed. Even though I explained to each research participant that I was interviewing them in my role as a university student, it could have been difficult for them to disregard my previous position of power and influence within the project. An independent researcher could have received different responses and obtained different results to mine.

5.2.4 Context

The fun context of the youth project and the excitement of meeting, working with and travelling overseas with peers from Malta and Italy could have idealised the research participants' experience and influenced their perspectives. They all chose to be interviewed online. Even though this had the advantage of ensuring uniformity and equality of context to one common virtual location, it could have also impacted replies to the interview questions since online person-to-person interactions "cannot fully establish cognitive social presence and affective social presence" (Wut & Xu, 2021, p. 371).

5.2.5 Life Stages

All research participants were in education during the project lifetime. This could be seen as another influence to their replies as it was their present lived experience and ultimately they could have associated metacognition solely with its perceived utility and applicability for academic achievement within their formal school context. This was a bias they could have

carried into the youth project (through peers and parents/guardians) based on our highly competitive education system (Buhagiar & Chetcuti, 2013).

5.3 Implications and Recommendations

Literature reviewed in Chapter 2 and the findings of this study which are included in Section 5.1 of this Chapter, suggest that there are benefits for young people developing metacognitive skills as a means of self-development and to enhance student achievement in formal education. In this regard I wish to outline some implications and recommendations based on the findings of this study.

5.3.1 Students and Peers

I encourage all students to discover the way they learn, to try out study strategies and tools and to follow courses/workshops about metacognition. According to the research participants, peer teaching and learning was deemed a good practice within the project activities and their perspectives included many positives in this regard.

5.3.2 Parents, Guardians and Student Mentors

Drawing on this study's theoretical framework, it is recommended that parents, guardians and student mentors learn about the benefits of developing metacognitive skills and using effective study methods/tools. Research shows that students benefit from being supported by a "more knowledgeable other" (Vygotsky, 1978).

5.3.3 Educators in Formal Education

Research shows that metacognitive skills can be taught e.g. Norman & Furnes (2016), however *a priori* educators must be knowledgeable about the development of these skills themselves before promoting and teaching metacognitive skills and strategies to students. It is recommended that this training is included in courses for pre-service teachers for future learning

(Kramarski, 2018) and for in-service teachers as part of their on-going professional development (Hughes, 2017). As a student-teacher, metacognition was not included in my programme of studies.

5.3.4 Educators in Non-formal/Informal Education (Youth Work)

Youth work is a very dynamic and ever changing environment where youth workers engage with young people. Youth workers have many roles (Sapin, 2013) and one of these roles is that of an educator. I echo the recommendations made for educators in formal education in sub-section 5.3.3 above to suggest that youth workers' programmes of studies should include using non-formal pedagogies to develop young people's metacognitive skills.

5.3.5 Online Information: Education Institutions

Education institutions in Malta should include a student page with hints and tips to support academic transitions, and about study strategies/tools for learning. An example of useful resources and information for students is available from Harvard University's website and can be accessed 24/7 on this link: https://academicresourcecenter.harvard.edu/college-students. Incidentally, metacognition is included at: https://academicresourcecenter.harvard.edu/learning-practices-backed-research.

5.3.6 Research

Metacognition is a branch of educational neuroscience which is an emerging field and evidences gaps in research. Suggested areas for research include (but not only): educators' awareness of metacognition, transfer of skills using a larger student cohort, metacognition and non-formal and informal learning, socially shared metacognitive processes, longitudinal studies to investigate possible correlations between student achievement and training on metacognitive skills or the influence of study tools/methods on academic achievement.

5.3.7 Curriculum Developers and Policy Makers – Malta

The National Curriculum Framework (2012) publication mentions "learning to learn" six times in a 96-page document. It was defined as "a priority in Malta's education context as it provides the ability to pursue and persist in learning" (p. 9) and identified as one of the cross-curricular themes regarded as "essential for the education of all students and for achieving the aims of education" (p. 37). However, despite the passage of over ten years from 2012, little progress seemed to have been made locally in this area to include and teach these skills. Based on research available, some of which is referenced in this study, it is recommended that curriculum developers and policy makers apply the vision presented in the 2012 document.

5.4 The Destination: Conclusion

I believe that revisiting the contents and results of the study by Ekuni, de Souza, Agarwal and Pompeia (2020) from Chapter 2, subsection 2.1.4, is valid closure for this study as they concur with most of the research participants' study practices before participating in the Erasmus+ youth project (e.g. rereading, taking notes, summarising). The research participants' accounts evidence their experience of developing metacognitive skills and learning about study methods and tools during the Erasmus+ youth project e.g. Plus Minus Interesting (Gillard, 2012), The 6 Thinking Hats (de Bono, 1985), online apps, mind maps and flashcards. The vast majority felt that the skills they developed were relevant and transferable to their formal school setting. Consequently, it is encouraged that readers of this study who are students or educators from the worlds of non-formal and formal education consider learning about the benefits of developing metacognitive skills and of embedding these skills, methods and tools in their studies and pedagogies. This would be for their benefit as part of their academic journey as students or professional development as educators.

5.5 Future Outlook: My Final Reflection

I am closing this study with a final reflection on my own journey of learning about metacognition. I am purposely including a reference to the 21st century in the Preamble and once again here in the final section of the study. There are a plethora of references in this study to the learning and development of metacognitive skills to meet the needs, opportunities and challenges of the 21st century (Wilson & Bai, 2010). However, in my opinion, our education practices seem to remain stuck to a fixed, one-size-fits-all model of education originating from the 20th century. I feel that this is fast becoming outdated and unsustainable for the future. My final thoughts as I conclude this study is to encourage educators from the worlds of non-formal and formal education to be actors of change by acquiring their own knowledge and understanding of metacognitive skills. Subsequently, they can apply pedagogies to teach these skills to young people, the "future selves" (Frazier, Schwartz & Metcalfe, 2021, p. 297), who need to learn how to learn, and how to transfer learning and skills to the new contexts created by the ever-changing societies and technologies of the 21st century.

References

Alexander, P. A. (2003). The Development of Expertise: The Journey from Acclimation to Proficiency. *Educational Researcher, 32*(8), 10-14. doi: https://doi.org/10.3102/0013189x032008010

Alzahrani, K. S. (2017). Metacognition and its Role in Mathematics Learning: an Exploration of the Perceptions of a Teacher and Students in Secondary School. *International Electronic Journal of Mathematics Education, 12*(3), 521-537.

Arnett, J. (2004). *Emerging Adulthood The Winding road from the Late Teens through the Twenties.* New York, U.S.A: Oxford University Press.

Arum, R., & Roksa, J. (2011). *Academically Adrift: Limited Learning on College Campuses.* The University of Chicago Press. doi:https://doi.org/10.7208/chicago/9780226028576.001.0001

Audi, R. (2010). *Epistemology: A contemporary introduction to the theory of knowledge.* Routledge.

Azevedo, R. (2020). Reflections on the field of metacognition: Issues, challenges and opportunities. *Metacognition and Learning, 15*, 91-98. doi:https://doi.org/10.1007/s11409-020-09231-x

Baird, J. R., & Mitchell, I. J. (1986). *Improving the quality of teaching and learning: An Australian case study - The PEEL Project.* Melbourne: Monash University.

Baird, J. R., & Northfield, J. R. (1992). *Learning from the PEEL experience.* Melbourne: Monash University.

Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin*, 612-637. doi: https://doi.org/10.1037/0033-2909.128.4.612

Beck, D., & Purcell, R. (2017). Overview of how Groups Work. In *Popular Education Practice for Youth and Community Development Work* (pp. 1-18). Sage Publications Inc. doi: https://doi.org/10.4135/9781526435774

Bee, H., & Boyd, D. (2007). *The Developing Child* (11th ed.). Upper Saddle River, NJ: Ally & Bacon.

Berger, T., & Frey, C. (2015). *Future Shocks and Shifts: Challenges for the Global Workforce and Skills Development.* Retrieved from OECD: https://www.oecd.org/education/2030-project/about/documents/Future-Shocks-and-Shifts-Challenges-for-the-Global-Workforce-and-Skills-Development.pdf

Bialik, M., & Fadel, C. (2018, January). *Knowledge for the Age of Artificial Intelligence: What should students learn?* Retrieved from Centre for Curriculum Redesign: https://curriculumredesign.org/wp-content/uploads/CCR_Knowledge_FINAL_January_2018.pdf

Biwer, F., de Bruin, A., & Persky, A. (2022). Study smart - impact of a learning strategy training on students' study behavior and academic performance. *Adv Health Sci Educ Theory Pract.*, 147-167. doi: https://doi.org/10.1007/s10459-022-10149-z

Bjerkaker, S. (2014). Changing Communities: The Study Circle - for learning and democracy. *Social and Behavioural Sciences, 142*, 260-267.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning. *Educational Psychologist, 26*(3-4), 369-398.

Borkowski, J. G., Chan, L. K., & Muthukrishna, N. (2000). A process-orientated model of metacognition: Links between motivation and executive functioning. In G. Schraw, & J. C. Impara (Eds.), *Issues in the Measurement of Metacognition* (pp. 1-42). Buros Institute of Mental Measurements.

Brame, C. (2013). *Thinking about Metacognition*. Retrieved from Vanderbilt University Center for Teaching: https://cft.vanderbilt.edu/2013/01/thinking-about-metacognition

Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn: Brain, mind, experience, and school.* Washington, D.C.: National Academy Press.

Bransford, J., Brown, A., & Cocking, R. (1999). *How people learn: Brain, mind, experience and school.* Washington, DC: National Academy Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3(2)*, 77-101. doi: https://doi.org/10.1191/1478088706qp063oa.

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper (Ed.), *APA handbook of research methods in psychology Vol 2: Research designs* (Vol. 2, pp. 57-71). American Psychological Association. doi: https://doi.org/10.1037/13620-004

Braun, V., & Clarke, V. (2022). *Thematic Analysis: A practical guide.* SAGE.

Braun, V., Clarke, V., Hayfield, N., & Terry, G. (2019). Thematic Analysis. In P. Liamputtong (Ed.), *Handbook of research methods in health social sciences* (pp. 843-860). Springer.

Brown, P. C., Roediger, H. I., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning.* Cambridge, MA: Harvard University Press. doi:http://dx.doi.org/10.4159/9780674419377

Bryman, A. (2012). *Social research methods.* New York, NY: Oxford University Press.

Buhagiar, M. A., & Chetcuti, D. (2013). The private tuition phenomenon in Malta: Moving towards a fairer education system. In M. Bray, A. E. Mazawi, & R. G. Sultana (Eds.), *Private Tutoring across the Mediterranean: Power Dynamics and Implications for Learning and Equity* (pp. 129-149). Rotterdam: Sense Publishers.

Burnard, P. (1986). Encountering Adults. *Senior Nurse, 4*(4), 30-32.

Burtăverde, V., de Raad, B., & Zanfirescu, A. (2018). An emic-etic approach to personality assessment in predicting social adaptation, risky social behaviors, status striving and social affirmation. *Journal of Research in Personality, 76*, 113-123. doi: https://doi.org/10.1016/j.jrp.2018.08.003

Camilleri, S., & Bezzina, A. (2021). Learning in a Circle - Apparent Simplicity. *Pastoral Care in Education*. doi: https://doi.org/10.1080/02643944.2021.1938645

Carretti, B., Caldarola, N., Tencati, C., & Cornoldi, C. (2014). Improving reading comprehension in reading and listening settings. The effect of two training programmes focusing on metacognition and working memory. *British Journal of Educational Psychology, 84*(2), 194-210.

Chandler, R., Anstey, E., & Ross, H. (2015). Listening to Voices and Visualizing Data in Qualitative Research: Hypermodal Dissemination. *SAGE Open, 5*(2), 1-8. doi:https://doi.org/10.1177/2158244015592166

Chauke, T. A. (2022). Youth work practice and life skills development in a non-formal education setting. *Youth Voice Journal*, 1-20. Retrieved from https://www.researchgate.net/publication/362945258_Youth_work_practice_and_life_skills_development_in_a_non-formal_education_setting

Chick, N. (2013). *Metacognition*. Retrieved from Vanderbilt University Center for Teaching: https://cft.vanderbilt.edu/guides-sub-pages/metacognition/

Chomsky, N. (1957). Logical structures in language. *American Documentation, 8*, 284-291.

Clark, K. F., & Graves, M. F. (2005). Scaffolding students' comprehension of text. *The Reading Teacher, 58*(6), 570-580.

Clark, M., & Cassar, J. (2013). *Leisure Trends Among Young People in Malta.* Office of the Commissioner for Children and Aġenżija Żgħażagħ. Retrieved from http://cdn02.abakushost.com/agenzijazghazagh/downloads/Leisure_Trends_Amongst_Young_People_in_Malta.pdf

Clarke, V., & Braun, V. (2017). Thematic Analysis. *The Journal of Positive Psychology, 12*(3), 297-298. doi: https://doi.org/10.1080/17439760.2016.1262613

Clough, P., & Nutbrown, C. (2012). *A student's guide to methodology* (3rd ed.). London: Sage.

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education.* (8th, Ed.) London, UK: Routledge.

Corney, T., Marion, J., Baird, R., Welsh, S., & Gorman, J. (2023). Youth Work as a Social Pedagogy: Toward an Understanding of Non-Formal and Informal Education and Learning in Youth Work. *Child & Youth Services*, 1-28. doi: https://doi.org/10.1080/0145935X.2023.2218081

Council of Europe. (2008). The future of the Council of Europe youth policy: Agenda 2020. *Declaration of the 8th Council of Europe Conference of Ministers Responsible for Youth*. Kyiv, Ukraine.

Credé, M., & Kuncel, N. R. (2008). Study habits, skills and attitudes: The third pillar supporting collegiate academic performance. *Perspectives on Psychological Science, 3*, 425-453. doi:http://dx.doi.org/10.111/j.1745-6924.2008.0089.x

Creswell, J. (1998). *Qualitative inquiry and research design: Choosing among five traditions.* Thousand Oakes, CA: Sage Publications.

Creswell, J. (2013). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches.* Thousand Oaks, CA: Sage Publications.

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches.* Sage Publications Inc.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative Inquiry & Research Design Choosing Among Five Approaches* (4th ed.). Thousand Oaks, California, U.S.A.: Sage Publications, Inc.

Cummings, C. (2015). Engaging new college students in metacognition for critical thinking: A developmental education perspective. *Research and Teaching in Developmental Education, 32*(1), 68-71.

Davies, B., Taylor, T., & Thompson, N. (2015). Informal Education, Youth Work and Youth Development: Responding to the Brathay Trust Case Study. *Youth & Policy, 115*, 85-86.

de Bono, E. (1985). *Six Thinking Hats.* London: Penguin Books.

de Vreede, C., Warner, A., & Pitter, R. (2014). Facilitating Youth to Take Sustainability Actions: The Potential of Peer Education. *The Journal of Environmental Education, 45*(1), 37-56. doi: https://doi.org/10.1080/00958964.2013.805710

Dennen, V. P. (2004). Cognitive apprenticeship in educational practice: Research on scaffolding, modeling, mentoring, and coaching as instructional strategies. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (pp. 813-828). Lawrence Erlbaum Associates Publishers.

Denzin, N. K., & Lincoln, Y. (2000). Introduction: The discipline and practice of qualitative research. In N. K. Denzin, & Y. Lincoln (Eds.), *Handbook of qualitative research.* Thousand Oaks: Sage.

Denzin, N., & Lincoln, Y. (2002). *The Qualitative Inquiry Reader.* London: Sage.

Dewey, J. (1933). *How We Think: A Restatement of the Relation of Reflective Thinking to the Educative Process.* Boston: Heath.

Dewey, J. (1938). *Experience and Education.* USA: Mamillan Press.

Dignath, C., & Büttner, G. (2008). Components of fostering self-regulated learning among students. A meta-analysis on intervention studies at primary and secondary school level. *Metacognition, 3*, 231-264.

Dignath, C., & Veenman, M. V. (2021). The Role of Direct Strategy Instruction and Indirect Activation of Self-Regulated Learning - Evidence from Classroom Observation. *Educ Psychol Rev, 33*, 489-533. doi:https://doi.org/10.1007/s10648-020-09534-0

Dimmitt, C., & McCormick, C. B. (2012). Metacognition in Education. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *Handbook, APA Educational Psychology, Vol 1: Theories, Constructs and Critical Issues* (pp. 157-187). Washington, DC: American Psychological Association.

Dinsmore, D. L., Alexander, P. A., & Loughlin, S. M. (2008). Focusing the Conceptual Lens on Metacognition, Self-Regulation, and Self-Regulated Learning. *Educational Psychology Review, 20*, 391-409. doi:https://doi.org/10.1007/s10648-008-9083-6

Donker, A., de Boer, H., Kostos, D., Dignath-van Ewijk, C., & van der Werf, M. (2014). Effectiveness of self-regulated learning strategies on academic performance: A meta-analysis. *Educational Psychology Review, 11*, 1-26.

Drake, P. (2010). Grasping at methodological understanding: A cautionary tale from insider research. *International Journal of Research & Method in Education, 33*(1), 85-99.

Dreyfus, H. L., & Dreyfus, S. E. (1986). *The power of human intuition and expertise in the era of the computer.* New York, NY: The Free Press.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*, 4-58. doi:http://dx.doi.org/10.11771/15291000612453266

Eichsteller, G., & Holthoff, S. (2011). Social Pedagogy as an ethical orientation toward working with people - Historical Perspectives. *Children Australia, 36*(4), 176-186. doi: https://doi.org/10.1375/jcas.36.4.176

Ekuni, R., de Souza, B. M., Agarwal, P. K., & Pompeia, S. (2020). A conceptual replication of survey research on study strategies in a diverse, non-WEIRD student population. *Scholarship of Teaching and Learning in Psychology*, 1-14. doi: https://doi.org/10.1037/stl0000191

Ekwueme, C. O., Ekon, E. E., & Ezenwa-Nebite, D. C. (2015). The impact of hand-on approach on student academic performance in basic science and mathematics. *Higher Education, 5*(6), 47-51. doi: https://doi.org/10.5539/hes.v5n6p47

European Commission. (2019). *Key competences for lifelong learning.* Directorate-General for Education, Youth, Sport and Culture. Publications Office. doi:10.2766/569540

European Commission. (n.d.). *Erasmus+ EU programme for education, training, youth and sport*. Retrieved from European Commission: https://erasmus-plus.ec.europa.eu/projects/search/details/2019-3-MT01-KA205-074043

Falzon, R. (2012). *Early educators' awareness and knowledge of structured multisensory literacy techniques. PhD Dissertation*. Northumbria University, UK.

Farrell Frey, T., Iwa, K., & Mikroyannidis, A. (2017). Scaffolding Reflection: Prompting Social Constructive Metacognitive Activity in Non-Formal Learning. *International Journal of Technology Enhanced Learning, 9*(4), 277-306.

Fereday, J., & Muir-Cochrane, E. (2008). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods, 5*, 80-92.

Flavell, J. H. (1976). Metacognitive aspects of problem solving. In L. Resnick (Ed.), *The Nature of Intelligence* (pp. 231-235). Hillsdale, NJ: Lawrence Erlbaum Associates.

Flavell, J. H. (1979). Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry. *American Psychologist, 34*, 906-911. doi: https://doi.org/10.1037/0003-066X.34.10.906

Flavell, J. H. (1985). *Cognitive Development.* Englewood Cliffs, NJ: Prentice Hall.

Flavell, J. H. (2004). Theory-of-Mind Development: Retrospect and prospect. *Merrill-Palmer Quarterly*(50), pp. 274-290.

Flavell, J. H., Miller, P. H., & Miller, S. A. (2002). *Cognitive Development* (4th ed.). Upper Saddle River: Prentice Hall.

Fleming, S. M., & Dolan, R. J. (2012). The neural basis of metacognitive ability. *Philos. Trans. R. Soc. B., 367*, 1338-1349.

Fleur, D. S., Bredeweg, B., & van den Bos, W. (2021). Metacognition: ideas and insights from neuro- and educational sciences. *npj Science of Learning, 6*(13), 1-11. doi: https://doi.org/10.1038/s41539-021-00089-5

Fogarty, R. (1994). *How to teach metacognition.* Palatine, IL: IRI/Skylight Publishing.

Frazier, L. D., Schwartz, B. L., & Metcalfe, J. (2021). The MAPS model of self-regulation: Integrating metacognition, agency and possible selves. *Metacognition and Learning, 16*, 297-318. doi:https://doi.org/10.1007/s11409-020-09255-3

Freire, P. (1970). *Pedagogy of the Oppressed.* New York: Herder and Herder.

Galletta, A. (2013). *Mastering the semi-structured interview and beyond. From research design to analysis and publication.* New York: New York University Press. doi: https://doi.org/10.18574/nyu/9780814732939.001.0001

Garrison, J., Neubert, S., & Reick, K. (2012). *John Dewey's Philosophy of Education.* Palgrave Macmillan.

Geertz, C. (1973). *The Interpretation of Cultures: Selected Essays.* Basic Books.

Geller, J., Toftness, A. R., Armstrong, P. I., Carpenter, S. K., Manz, C. L., Coffman, C. R., & Lamm, M. H. (2018). Study strategies and beliefs about learning as a function of

academic achievement and achievement goals. *Memory, 26*, 683-690. doi:http://dx.doi.org/10.1080/096558211.2017.1397175

Gentner, D., & Stevens, A. L. (1983). *Mental Models.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Gentner, D., Ratterman, M. J., & Forbus, K. D. (1993). The roles of similarity: Separating retrievability from inferential soundness. *Cognitive Psychology, 25*, 524-575.

Georghiades, P. (2004). From the General to the Situated: Three Decades of Metacognition. *International Journal of Science Education, 26*(3), 365-383.

Gilbert, L. S., Jackson, K., & di Gregorio, S. (2013). Tools for Analyzing Qualitative Data: The History and Relevance of Qualitative Data Analysis Software. In J. Spector, M. Merrill, J. Elen, & M. Bishop (Eds.), *Handbook of Research on Educational Communications and Technology* (pp. 221-236). New York, NY: Springer. doi: https://doi.org/10.1007/978-1-4614-3185-5_18

Gilgun, J. F. (2005). "Grab" and good science: Writing up results of qualitative research. *Qualitative Health Research, 15*, 256-262.

Gillard, M. (2012). *PMI - Plus Minus Interesting*. Retrieved from Innovation-Creativity: http://www.innovation-creativity.com/pmi.html

Glenberg, A. M., & Epstein, W. (1985). Calibration of comprehension. *Journal of Experimental Psychology: General, 11*, 702-218.

Green, S. K., & Gredler, M. E. (2002). A Review and Analysis of Constructivism for School-Based Practice. *School Psychology Review, 31*(1), 53-70.

Gutierrez de Blume, A. P., Wells , P., Davis, C. A., & Parker, J. (2017). "You Can Sort of Feel It": Exploring Metacognition and the Feeling of Knowing Among Undergraduate Students.

The Qualitative Report, 22(7), 2017-2032. doi: https://doi.org/10.46743%2F2160-3715%2F2017.2802

Hackathornal, J., Solomonb, E. D., Blankmeyerb, K. L., Tennialb, R. E., & Garczvnskib, A. M. (2011). An Empirical Study of Active Teaching Techniques. *The Journal of Effective Teaching, 11*(2), 40-54. Retrieved from https://files.eric.ed.gov/fulltext/EJ1092139.pdf

Hacker, D. J., Dunlosky, J., & Graesser, A. C. (Eds.). (2009). *Handbook of Metacognition in Education.* Abingdon: Routledge.

Halai, A. (2006). Ethics dilAbbys in qualitative research. In *HEC News & Views* (pp. 2-4).

Hall, A. (2007). Vygotsky Goes Online: Learning Design from a Socio-cultural Perspective, Learning and Socio-cultural Theory. *Exploring Modern Vygotskian Perspectives International Workshop, 1*(1), 93-107. Retrieved from http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1005&context=llrg

Hammarberg, K., Kirkman, M., & de Lacey, S. (2016). Qualitative research methods: When to use them and how to judge them. *Human Reproduction, 31*(3), 298-501. doi: https://doi.org/10.1093/humrep/dev334

Hargrove, R. A., & Nietfeld, J. L. (2015). The impact of metacognitive instruction on creative problem solving. *The Journal of Experimental Education, 83*(3), 291-318.

Harré, R. (2012). Positioning theory: Moral dimensions of social-cultural psychology. In J. Valsiner (Ed.), *The Oxford Handbook of Culture and Psychology.* (pp. 191-206). New York: Oxford University Press.

Harrop, E. N., Urquhart, G. B., Enkema, M. C., & Clifasefi, S. L. (2013). Chapter 47 - Twins Studies and the Heritability of Substance Use. In P. M. Miller (Ed.), *Biological Research*

on Addiction (pp. 475-487). Academic Press. doi: https://doi.org/10.1016/B978-0-12-398335-0.00047-9.

Hartman, H. J. (1998). Metacognition in teaching and learning: An introduction. *Instructional Science, 26*, 1-3.

Hartwig, M. K., & Dunlosky, J. (2012). Study strategies of college students: Are self-testing and scheduling related to achievement? *Psychonomic Bulletin & Review, 19*, 126-134. doi:http://dx.doi.org/10.3758a/s13423-011-0181-y

Hatano, G., & Inagaki, K. (1992). Desituating metacognition through the construction of conceptual knowledge. In P. Light, & G. Butterworth (Eds.), *Context and Cognition.* Hemel Heampstead: Harvester Wheatsheaf.

Hattie, J. (2009). *Visible Learning: A synthesis of over 800 Meta-Analyses Relating to Achievement.* Routledge.

Hattie, J. (2012). *Visible Learning for Teachers: Maximizing Impact on Learning.* Thousand Oaks, CA: Corwin.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81-112.

Hattie, J., Biggs, J., & Purdie, N. (1996). Effects of learning skills interventions on student learning: a meta-analysis. *Rev. Educ. Res., 66*, 99-136.

Holmes, A. G. (2020). Researcher positionality - A consideration of its influence and place in qualitative research - a new researcher guide. *International Journal of Education, 8*(4), 1-10. doi: https://doi.org/10.34293/education.v8i4.3232

Hoskins, B., & Deakin, C. (2010). Competences for learning to learn and active citizenship: Different currencies or two sides of the same coin? *European Journal of Education, 45*(1, Part II), 121-138.

Hughes, A. J. (2017). Educational Complexity and Professional Development: Teachers' need for metacognitive awareness. *Journal of Technology Education, 29*(1), 25-44. doi:https://doi.org/10.21061/jte.v29i1.a.2

Jacobs, J. E., & Paris, S. G. (1987). Children's metacognition about reading: Issues in definition, measurement, and instruction. *Educational Psychologist, 22*, 255-278.

Jacobsen, R. (2023). *Metacognition: How Thinking about Thinking can help kids*. Retrieved from Child Mind Institute: https://childmind.org/article/how-metacognition-can-help-kids/#:~:text=Metacognitive%20skills%20can%20also%20help,and%20stop%20beating%20themselves%20up.

Jaleel, S., & Premachandran, P. (2016). A Study on the Metacognitive Awareness of Secondary School Students. *Universal Journal of Educational Research, 4*(1), 165-172.

Johnson, B., & Christensen, L. (2010). *Educational research: Quantitative, qualitative and mixed approaches.* California: SAGE Publications Limited.

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A Review of the Quality Indicators of Rigor in Qualitative Research. *American Journal of Pharmaceutical Education, 84*(1), 138-146. doi: https://doi.org/10.5688/ajpe7120

Karpudewan, M., Ponniah, J., & Zain, A. N. (2016). Project-Based Learning: An Approach to Promote Energy Literacy Among Secondary School Students. *The Asia-Pacific Education Researcher, 25*(2), 229-237.

Kassai, R., Futo, J., Demetrovics, Z., & Takacs, Z. K. (2019). A meta-analysis of the experimental evidence on the near- and far-transfer effects among children's executive function skills. *Psychol. Bull., 145*, 165-188.

Kember, D., Tak-Shing, H., Bick-Har, L., Lee, A., NG, S., Yan, L., & Yum, J. C. (1997). The Diverse Role of the Critical Friend in Supporting Educational Action Research Projects. *Educational Action Research, 5*(3), 463-481. doi:10.1080./09650799700200036

Kikas, E., & Jõgi, A. (2016). Assessment of learning strategies: Self-report questionnaire or learning task. *European Journal of Psychology of Education, 31*, 579-593. doi: https://doi.org/10.1007/s10212-015-0276-3

Kilbrink, N., & Bjurulf, V. (2013). Transfer of knowledge in technical vocational education: a narrative study in Swedish upper secondary school. *International Journal of Technology and Design Education, 23*, 519-535. doi:https://doi.org/10.1007/S10798-012-9201-0

Kim, D., & Lim, C. (2018). Promoting socially shared metacognitive regulation in collaborative project-based learning: a framework for the design of structured guidance. *Teaching in Higher Education, 23*(2), 194-211. doi: https://doi.org/10.1080/13562517.2017.1379484

Kim, J., & Bjun, S. (2013). An Evaluation of Transfer of Training Effects on Nuclear Power Plan MCR Operators. *Journal of Ergonomics Society of Korea, 32*, 77-85. doi:https://doi.org/10.5143/JSEK.2013.32.1.77

Kloosterman, P., & Taylor, M. (2012). *Handbook for facilitators Learning to Learn in practice.* Vilnius, Lithuania: Firidas.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, N J: Prentice Hall.

Koriat, A., & Bjork, R. A. (2005). Illusions of competence in monitoring one's knowledge during studying. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 31*, 187-194. doi:http://dx.doi.org/10.1037/0278-7393.31.2.187

Kornell, N., & Bjork, R. A. (2007). The promise and perils of self-regulated study. *Psychonomic Bulletin & Review, 14*, 219-224. doi:http://dx.doi.org/10.3758/BF03194055

Kramarski, B. (2018). Teachers as agents in prompting students' SRL and performance: applications for teachers' dual role training programs. In D. Schunk, & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed., pp. 223-240). New York: Routledge.

Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into Practice, 41*(4), 212-218. doi: https://doi.org/10.1207/s15430421tip4104_2

Kuckartz, U., & Rädiker, S. (2019). *Analysing Qualitative Data with MAXQDA.* Springer.

Kuhn, D. (2008). Formal operations from a twenty-first century perspective. *Human Development*, 48-55.

Kuhn, D., & Dean, D. J. (2004). Metacognition: A Bridge Between Cognitive Psychology and Educational Practice. *Theory Into Practice, 43*, 268-273. doi:https://doi.org/10.1207/s15430421tip4303_4

Kvale, S., & Brinkmann, S. (2015). *Interviews: Learning the Craft of Qualitative Research Interviewing* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Larmar, S., & Lodge, J. M. (2014). Making sense of how I learn: Metacognitive capital and the first year university student. *The International Journal of the First Year in Higher Education, 5*(1), 93-105. doi:https://doi.org/10.5204/intjfyhe.v5i1.193.

Larson, R. (2006). Positive youth development, willful adolescents, and mentoring. *Journal of Community Psychology, 34*(6), 677-689.

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participations.* Cambridge: Cambridge University Press.

Leat, D., & Lin, M. (2002). Developing a Pedagogy of Metacognition and Transfer: some signposts for the generation and use of knowledge and the creation of research partnerships. *British Educational Research Journal*, 383-415. doi: https://doi.org/10.1080.01441192031000156015

Lichtman, M. (2009). *Qualitative Research in Education: A User's Guide.* California: SAGE Publications Limited.

Livengood, K., Lewallen, D. W., Leatherman, J., & Maxwell, J. L. (2012). The use of Evaluation of Scaffolding, Student Centred-Learning, Behaviourism and Constructivism to Teach Nuclear Magnetic Resonance and IR Spectroscopy in a Two-Semester Organic Chemistry Course. *Journal of Chemistry Education, 89*(8), 1001-1006.

Loaiza, Y., Patiño, M., Umaña, O., & Duque, P. (2023). What is new in metacognition research? Answers from current literature. *Educación y Educadores, 25*(3), 1-24. doi: https://doi.org/10.5294/edu.2022.25.3.5

Lobczowski, N. G., Lyons, K., Greene, J. A., & McLaughlin, J. E. (2021). Socially shared metacognition in a project-based learning environment: A comparative case study. *Learning, Culture and Social Interaction, 30*, 1-18. doi: https://doi.org/10.1016/j.lcsi.2021.100543

MacKewn, A., Depriest, T., & Donavant, B. (2022). Metacognitive Knowledge, Regulation and Study Habits. *Psychology, 13*, 1811-1821. doi: https://doi.org/10.4236/psych.2022.1312112

Marques, R., Alchieri, R. M., & Fraguas, T. (2022). Theoretical and methodological aspects of Paulo Friere's Pedagogy: A pedagogical and dialogic possibility in the teaching and learning process. *Conjecturas, 22*(16), 190-199. doi: https://doi.org/10.53660/CONJ-1990-MP12

Martin, J., Sokol, B. W., & Elfers, T. (2008). Taking and coordinating perspectives: From prereflective interactivity, through reflective intersubjectivity, to meta reflective sociality. *Human Development, 51*(5-6), 294-317.

Mat Noor, M., & Shafee, A. (2020). The role of critical friends in action research: A framework for design and implementation. *Practitioner Research*, 1-33. doi: https://doi.org/10.32890/pr2021.3.1

Mayer, R., & Wittrock, M. (1996). Problem-solving transfer. In *Handbook of Educational Psychology.* New York: Simon & Schuster Macmillan.

McCarthy, K. S., Likens, A. D., Johnson, A. M., Guerrero, T. A., & McNamara, D. S. (2018). Metacognitive Overload!: Positive and Negative Effects of Metacognitive Prompts in an Intelligent Tutoring System. *International Journal of Artificial Intelligence in Education, 28*, 420-438. doi: https://doi.org/10.1007/s40593-018-0164-5

McClelland, D. C. (1987). *Human Motivation.* Cambridge University Press.

McEachern, L. W., Yessis, J., Yovanovich, J., Crack, S., Zupko, B., Valaitis, R., & Hanning, R. M. (2022). Implementation of the Learning Circle: Local Food to School Initiative in the

Island Communities of Haida Gwaii, British Colombia, Canada-a Descriptive Case Study. *Current Developments in Nutrition*, 1-13. doi: https://doi.org/10.1093/cdn/nzac090

McKeachie, W. J. (1988). The need for study strategy training. In C. E. Weinstein, E. T. Goetz, & P. A. Alexander (Eds.), *Learning and study strategies: Issues in assessment, instruction, and evaluation* (pp. 3-9). New York: Academic Press. doi:https://doi.org/10.1016/B978-0-12-742460-6.50007-4

McShane, J. (1991). *Cognitive development: An information processing approach.* Basic Blackwell.

Mead, G. H. (1934). *Mind, self, and society from the standpoint of social behaviorists.* (C. W. Morris, Ed.) Chicago: University of Chicago Press.

Millar, R. (2004). *The role of practical work in the teaching and learning of science.* University of York. Retrieved from https://sites.nationalacademies.org/cs/groups/dbassesite/documents/webpage/dbasse_073330.pdf

Ministry of Education and Employment. (2012, August 14). *Resources.* Retrieved from curriculum.gov.mt: https://curriculum.gov.mt/en/Resources/The-NCF/Documents/NCF.pdf

Mitsea, E., Drigas, A., & Mantas, P. (2021). Soft Skills & Metacognition as Inclusion Amplifiers in the 21st Century. *International Journal of Online and Biomedical Engineering, 17*(4), 121-132. doi: https://doi.org/10.3991/ijoe.v17i04.20567

Morgan, H. (2022). Understanding Thematic Analysis and the debates involving its use. *The Qualitative Report, 27*(10), 2079-2091. doi: https://doi.org/10.46743/2160-3715/2022.5912

Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counselling psychology. *Journal of Counseling Psychology, 52*(2), 250-260. doi:https://doi.org/10.1037/0022-0167.52.2.250

Moses-Payne, M. E., Habicht, J., Bowler, A., Steinbeis, N., & Hauser, T. U. (2021). I know better! Emerging metacognition allows adolescents to ignore false advice. *Developmental Science, 24*(e13101), 1-13. doi: https://doi.org/10.1111/desc.13101

Negretti, R. (2012). Metacognition in student academic writing: A longitudinal study of metacognitive awareness and its relation to task perception, self-regulation, and evaluation of performance. *Written Curriculum, 29*(2), 142-179.

Neuenhaus, N., Artelt, C., Lingel, K., & Schneider, W. (2011). Fifth graders metacognitive knowledge: General or domain-specific. *European Journal of Psychology of Education, 26*, 163-178.

Nguyen, T. (2015). The Interconnection between interpretivist paradigm and qualitative methods in education. *American Journal of Educational Science, 1*(2), 24-27.

Nietfeld, J. L., & Shraw, G. (2002). The effect of knowledge and strategy explanation on monitoring accuracy. *Journal of Educational Research, 95*, 131-142.

Nist, S. (1993). What the literature says about academic literacy. *Georgia Journal of Reading, Fall-Winter*, 11-18.

Nordell, S. E. (2009). Learning How to Learn: A Model for Teaching Students Learning Strategies. *Bioscene, 35*(1), 35-42.

Nordin, S., & Yunus, K. (2020). Exploring Metacognitive Awareness among Teachers. *International Journal of Academic Research in Progressive Education and Development, 9*(2), 462-472. doi:http://dx.doi/10.6007/IJARPED/v9-i2/7490

Norman, E. (2020). Why Metacognition Is Not Always Helpful. *Perspective, 11*, 1-6. doi: https://doi.org/10.3389/fpsyg.2020.01537

Norman, E., & Furnes, B. (2016). The concept of "meta-emotion": What is there to learn from research on metacognition? *Emotion Review, 8* (2), 187-193.

Norqvist, L., & Leffler, E. (2017). Learning in non-formal education: Is it "youthful" for youth in action? *International Review of Education, 63*, 235-256.

Norton, L. V. (2003). The Power of Circles: Using a familiar technique to promote culture change. *Journal of Social Work in Long-Term Care, 2*(3-4), 285-292. doi: https://doi.org/10.1300/J181v02n03_05

Nowell, L., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis: Striving to Meet the Trustworthiness Criteria. *International Journal of Qualitative Methods, 16*(1), 1-13. doi: https://doi.org/10.1177/1609406917733847

NSCC. (n.d.). *Cognitive Development in Adolescence*. Retrieved from NSCC: https://pressbooks.nscc.ca/lumenlife/chapter/cognitive-development-in-adolescence/#:~:text=There%20are%20two%20perspectives%20on,quantitative%2C%20stage%2Dtheory%20approach.

Ochieng, P. (2009). An Analysis of the Strengths and Limitation of Qualitative and Quantitative Research Paradigms. *Problems of Education in the 21st Century, 13*(13), 13-18. Retrieved from http://www.scientiasocialis.lt/pec/files/pdf/Atieno_Vol.13.pdf

Ohtani, K., & Hisasaka, T. (2018). Beyond Intelligence: A meta-analytic review of the relationship among metacognition, intelligence, and academic performance. *Metacognition and Learning, 13*(2), 179-212. doi:https://doi.org/10/1007/s11409-018-9183-8

Organization for Economic Co-operation and Development. (2018). *The Future of Education and Skills: Education 2030*. Retrieved from http://www.oecd.org/education/2030/E2030%20Position%20Paper%2 0(26-11-2020).pdf

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*(2), 117-175.

Panadero, E. (2017). A Review of Self-regulated Learning: Six Models and Four Directions for Research. *Frontiers in Psychology, 8*, 1-28. doi: https://doi.org/10.3389/fpsyg.2017.00422

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning Styles: Concepts and Evidence. *Psychological Science in the Public Interest, 9*, 105-119. doi:http://dx.doi.org/10.1111/j.1539-6053.2009.01038.x

Paulus, T. M., & Lester, J. N. (2020). 37. Using software to support qualitative data analysis. In *Handbook of qualitative research in education* (pp. 420-429). Retrieved from https://www.etsu.edu/coe/research/documents/paulus_lester2020.pdf

Perakyla, A. (1997). Reliability and validity in research based on tapes and transcripts. In D. Silverman (Ed.), *Qualitative Research: Theory, Method and Practice* (pp. 201-220). London: Sage.

Perkins, D. N., & Salomon, G. (1989). Are cognitive skills context-bound? *Educational Researcher, 18*, 16-25.

Perkins, D., & Salomon, G. (2012). Knowledge to Go: A Motivational and Dispositional View of Transfer. *Educational Psychologist, 47*, 248-258. doi:https://doi.org/10.1080/00461520.2012.693354

Piaget, J. (1964). Part I: Cognitive development in children: Piaget development and learning. *Journal of Research in Science Teaching, 2*, 176-186. doi: https://doi.org/10.1002/tea.3660020306

Pintrich, P. R. (2002). The role of metacognitive knowledge in learning, teaching, and assessing. *Theory into Practice, 41*(4), 219-225.

Pirrie, A., & Thoutenhoofd, E. (2013). Learning to learn in the European Reference Framework for lifelong learning. *Oxford Review of Education, 39*(5), 609-626. doi: https://doi.org/10.1080/03054985.2013.840280

Powell, M. A., & Smith, A. B. (2006). Ethical guidelines for research with children: A review of current research ethics documentation in New Zealand. *New Zealand Journal of Social Sciences Online, 1*, 125-138. doi: https://doi.org/1177–083X/06/0102–0125

Prasetyo, I., Suryono, Y., & Gupta, S. (2021). The 21st Century Life Skills-Based Education Implementation at the Non-Formal Education Institute. *Journal of Nonformal Education, 7*(1), 1-7. Retrieved from https://journal.unnes.ac.id/nju/index.php/jne/article/viewFile/26385/11396

Pressley, M. (2002). Comprehension strategies instruction: a turn-of-the-century status report. In C. C. Block, & M. Pressley (Eds.), *Comprehension instruction: research-based best practices* (pp. 11-27). New York: Guildford.

Pressley, M., & Hilden, K. (2006). Cognitive strategies. In W. Damon, & R. Lerner (Eds.), *Handbook of child psychology* (6th ed.). New York: Wiley.

Prytula, M. P. (2012). Teacher Metacognition within the Professional Learning Community. *International Education Studies, 5*(4), 112-121.

Rabinowitz, M., Freeman, K., & Cohen, S. (1992). Use and maintenance of strategies. The influence of accessibility on knowledge. *Journal of Educational Psychology, 84*, 211-218.

Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing Standard, 20*(44), 41-45.

Roediger, H. L., & Pyc, M. A. (2012). Inexpensive techniques to improve education: Applying cognitive psychology to enhance educational practice. *Journal of Applied Research in Memory and Cognition, 1*, 242-248. doi:http://dx.doi.org/10.1016/j.jarmac.2012.09.002

Rogers, C., & Freiberg, H. J. (1994). *Freedom to Learn.* New York, NY: Macmillan College Publishing Company.

Rosenberg, M. (2012). *Beyond Competence: It's the Journey to Mastery That Counts*. Retrieved from Learning Guild: https://www.learningguild.com/articles/930/beyond-competence-its-the-journey-to-mastery-that-counts/

Rosseter, B. (1987). Youth Workers as Educators. In T. Jeffs, & M. Smith (Eds.), *Youth Work. Practical Social Work* (pp. 52-65). London: Palgrave. doi: https://doi.org/10.1007/978-1-349-18594-8_5

Rovai, A. P. (2002). Building Sense of Community at a Distance. *International Review of Research in Open and Distance Learning, 3*(1), 1-16.

Rowell, L. L., Polush, E. Y., Riel, M., & Bruewer, A. (2015). Action researchers' perspectives about the distinguishing characteristics of action research: A Delphi and learning circles mixed-methods study. *Educational Action Research*(2), 243-270. doi: https://doi.org/10.1080/09650792.2014.990987

Rowland, C. A. (2014). The effect of testing versus restudy on retention: A meta-analysis review of the testing effect. *Psychological Bulletin, 140*, 1432-1463. doi:http://dx.doi.org/10.1037/a0037559

Rubin, H. J., & Rubin, I. S. (2012). *Qualitative Interviewing: The Art of Hearing Data* (3rd ed.). Thousand Oaks: Sage Publications.

Rubin, L., & Hebert, C. (1998). Model for Active Learning: Collaborative Peer Teaching. *College Teaching, 46*(1), 26-30. doi: https://doi.org/10.1080/87567559809596229

Rugut, E. J., & Osman, A. A. (2013). Reflection on Paulo Freire and Classroom Relevance. *American International Journal of Social Science, 2*(2), 23-28. Retrieved from https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=84a187e859b9da2bb3a5102bd1d452f304923fe0

Santos, N., Monteiro, V., & Mata, L. (2021). Using MAXQDA in Qualitative Content Analysis: An example Comparing Single-Person and Focus Group Interviews. In M. C. Gizzi, & S. Rädiker (Eds.), *The Practice of Qualitative Data Analysis Research Examples using MAXQDA* (pp. 35-54). MAXQDA Press.

Santrock, J. W. (2010). *Adolescence* (13th ed.). McGraw-Hill Higher Education.

Sapin, K. (2013). *Essential Skills for Youth Work Practice.* London: SAGE Publications Ltd.

Scardamalia, M., Bereiter, C., & Steinbach, R. (1984). Teachability of reflective processes in written composition. *Cognitive Science, 8*, 173-190.

Scharff, L., Draeger, J., Verpoorten, D., Devlin, M., Dvorakova, L. S., Lodge, J. M., & Smith, S. V. (2017). Exploring Metacognition as a support for learning transfer. *Teaching and Learning Enquiry, 5*(1), 78-91. doi: https://doi.org/10.20343/teachlearninqu.5.1.6

Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional Science, 26*(1-22), 113-125.

Schraw, G. (2001). Promoting general metacognitive awareness. In H. J. Hartman (Ed.), *Metacognition in learning and instruction. Theory, research and practice* (pp. 3-16). Netherlands: Springer.

Schraw, G., & Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology, 19*, 460-475.

Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychological Review*, 351-371.

Schraw, G., & Nietfeld, J. (1998). A further test of the general monitoring skill hypothesis. *Journal of Educational Psychology, 90*, 236-248.

Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promotion self-regulation in science education. Metacognition as a part of a broader perspective on learning. *Research in Science Education, 36*, 111-139.

Schraw, G., Dunkle, M. E., Bendixen, L. D., & Roedel, T. D. (1995). Does a general monitoring skill exist? *Journal of Educational Psychology, 87*, 433-444.

Schugurensky, D. (2000). The forms of informal learning: Towards a conceptualization of the field. *The Research Network on New Approaches to Lifelong Learning, 19*, 1-8.

Schuster, C., Stebner, F., Leutner, D., & Wirth, J. (2020). Transfer of metacognitive skills in self-regulated learning: An experimental training study. *Metacognition and Learning, 15*, 455-477. doi: https://doi.org/10.1007/s11409-020-09237-5

Serra, M. J., & Metcalfe, J. (2009). Effective implementation of metacognition. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of metacognition in education* (pp. 278-298). Mahwah, NJ: Erlbaum.

Siegesmund, A. (2016). Increasing student metacognition and learning through classroom-based learning communities and self-assessment. *J. Microbiol. Biol. Educ.*, 204-214. doi: https://doi.org/10.1128/jmbe.v17i2.954

Simpson, M. L., & Nist, S. L. (2000). An update on strategic learning: It's more than textbook reading strategies. *Journal of Adolescent and Adult Literacy, 43*(6), 528-541.

Smith, J., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis* (1st ed.). Los Angeles: Sage.

Stanford Medicine. (n.d.). *Cognitive Development in the Teen Years*. Retrieved from Stanford Medicine Children's Health: https://www.stanfordchildrens.org/en/topic/default?id=cognitive-development-in-adolescence-90-P01594

Stebner, F., Schuster, C., Weber, X., Greiff, S., Leutner, D., & Wirth, J. (2022). Transfer of metacognitive skills in self-regulated learning: Effects on strategy application and content knowledge acquisition. *Metacognition and Learning, 17*, 715-744. doi: https://doi.org/10.1007/s11409-022-09322-x

Stenhouse, L. (1975). *An Introduction to Curriculum Research and Development.* London: Heinemann.

Sternberg, R. J., & Kagan, J. (1986). *Intelligence Applied: Understanding and Increasing your Intellectual Skills.* New York, NY: Harcourt Brace Jovanovich.

Stronach, I., Garratt, D., Pearce, C., & Piper, H. (2007). Reflexivity, the Picturing of Selves, the Forging of Method. *Qualitative Inquiry, 13*(2), 179-203. doi: https://doi.org/10.1177/10778004062955476

Struyven, K., Dochy, F., & Janssens, S. (2008). Students' likes and dislikes regarding student-activating and lecture-based educational settings: Consequences for students' perceptions of the learning environment, student learning and performance. *European Journal of Psychology of Education, 23*(3), 295-317.

Stuart, K., & Maynard, L. (2015). Non-formal youth development and its impact on young people's lives: Case study - Brathay Trust, UK. *Italian Journal of Sociology of Education, 7*(1), 231-262.

Tanner, K. D. (2012). Promoting Student Metacognition. *CBE-Life Sciences Education, 11*, 113-120.

Tarricone, P. (2011). *The taxonomy of Metacognition.* New York, NY: Psychology Press.

Teng, F. (2020). Tertiary-Level Students' English Writing Performance and Metacognitive Awareness: A Group Metacognitive Support Perspective. *Scandinavian Journal of Educational Research, 64*(4), 551-568. doi: https://doi.org/10.1080/00313831.2019.1595712

Teng, F. (2018). A learner-based approach of applying online reading to improve learner autonomy and lexical knowledge. *Spanish Journal of Applied Linguistics, 31*(1), 104-134.

Terry, G., Hayfield, N., Clarke, V., & Braun, V. (2017). Thematic Analysis. In C. Willig, & W. Stainton-Rogers (Eds.), *The SAGE handbook of qualitative research in psychology* (pp. 17-37). SAGE.

The Council of the European Union. (2018). *Official Journal of the European Union.* Resolutions, recommendations and opinions, The Council of the European Union. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&from=EN

Thiede, K. W., Anderson, M. C., & Therriault, D. (2003). Accuracy of metacognitive monitoring affects learning of texts. *Journal of Educational Psychology, 95*, 66-73.

Thomas, G. P., & McRobbie, C. J. (2001). Using a Metaphor for Learning to Improve Students' Metacognition in the Chemistry Classroom. *Journal of Research in Science Teaching, 38*(2), 222-259.

Tracy, S. (2013). *Qualitative Research Methods.* Chichester: Wiley-Blackwell.

Ulferts, H., Willermark, S., Cooc, N., Kim, G., Brühwiler, C., Hollenstein, L., . . . Fink, A. (2021). *Teaching as a Knowledge Profession: Studying Pedagogical Knowledge across Education Systems.* (H. Ulferts, Ed.) Educational Research and Innovation, OECD Publishing. doi: https://doi.org/10.1787/20769679.

Umino, A., & Dammeyer, J. (2016). Effects of a non-instructional prosocial intervention program on children's metacognition skills and quality of life. *Intern. J. Educ. Res.*, 24-31. doi: https://doi.org/10.1016/j.ijer.2016.05.004

Vaccaro, A. G., & Fleming, S. M. (2018). Thinking about things: A coordinate-based meta-analysis of neuroimaging studies of metacognitive judgements. *Brain Neurosci. Adv., 2*. doi: https://doi.org/10.1177%2F2398212818810591

van der Stel, M., & Veenman, M. V. (2014). Metacognitive skills and intellectual ability of young adolescents: A longitudinal study from a developmental perspective. *European Journal of Psychology of Education, 29*(1), 117-137.

Veenman, M. V., & Verheij, J. (2003). Technical students' metacognitive skills: Relating general vs. specific metacognitive skills to study success. *Learning and Individual Differences, 13*, 259-272.

Veenman, M. V., Elshout, J. J., & Meijer, J. (1997). The generality versus domain-specificity of metacognitive skills in novice learning across domains. *Learning and Instruction, 7*, 187-209.

Veenman, M. V., Van Hout-Wolters, B. H., & Afflerbach, P. (2006). Metacognition and learning: conceptual and methodological considerations. *Metacogn Learn, 1*, 3-14.

Veenman, M., & Spaans, M. A. (2005). Relation between intellectual and metacognitive skills: Age and task differences. *Learn. Individ. Differ., 15*, 159-176.

Veenman, M., van Hout-Walters, B., & Afflerbach, P. (2006). Metacognition and learning: Conceptual and methodological considerations. *Metacognition Learning, 1*, 3-14.

Vijver, F., & Brouwers, S. (2009). Schooling and basic aspects of intelligence: A natural quasi-experiment in Malawi. *Journal of Applied Developmental Psychology, 30*, 67-74. doi:https://doi.org/10.1016/J.APPDEV.2008.10.010

Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes.* Cambridge, MA: Harvard University Press.

Wade, S., & Hammick, M. (1999). Action Learning Circles: Action learning in theory and practice. *Teaching in Higher Education, 4*(2), 163-178. doi: https://doi.org/10.1080/1356251990040202

Wall, K., & Hall, E. (2016). Teachers as metacognitive role models. *European Journal of Teacher Education, 39*, 403-418. doi:https://doi.org/10.1080/02619768.2016.1212834

Ward, R. T., & Butler, D. L. (2019). An Investigation of Metacognitive Awareness and Academic Performance in College Freshmen. *Education, 139*(3), 120-126.

Webb, N. M. (1989). Peer interaction and learning in small groups. *International Journal of Educational Research, 13*, 21-39.

Weil, L. G. (2013). The development of metacognitive ability in adolescence. *Conscious Cognition, 22*, 264-271.

Weil, L. G., Fleming, S. M., Dumontheil, I., Kilford, E. J., Weil, R. S., Rees, G., . . . Blakemore, S. J. (2013). The development of metacognitive ability in adolescence. *Consciousness and cognition, 22*(1), 264-271. doi:https://doi.org/10.1016/j.concog.2013.01.004

Westera, W. (2011). On the changing nature of learning content: Anticipating the virtual extensions of the world. *Educational Technology & Society, 14*(2), 201-212.

What is PBL? (n.d.). Retrieved from Buck Institute for Education PBLWorks: https://www.pblworks.org/what-is-pbl

White, R. T. (1988). Metacognition. In J. P. Keeves (Ed.), *Educational research, methodology, and measurement* (pp. 70-75). Oxford: Pergamon.

Willis, J. W. (2007). *Foundations of qualitative research: interpretative and critical approaches.* London: Sage.

Wilson, N. S., & Bai, H. (2010). The relationships and impact of teachers' metacognitive knowledge and pedagogical understandings of metacognition. *Metacognition Learning, 5*, 269-288. doi: https://doi.org/10.1007/s11409-010-9062-4

Wolters, C. A., & Hussain, M. (2015). Investigating grit and its relations with college students self-regulated learning and academic achievement. *Metacognition and Learning, 10*(3), 293-311.

Wood, D. J., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychiatry and Psychology, 17*(2), 89-100.

Wut, T., & Xu, J. (2021). Person-to-person interactions in online classroom settings under the impact of Covid-19: A social presence theory perspective. *Asia Pacific Educ. Review, 22*, 371-383. doi: https://doi.org/10.1007/s12564-021-09673-1

Yarrow, F., & Topping, K. J. (2001). Collaborative writing: The effects of metacognitive prompting and structured peer interaction. *British Journal of Educational Psychology, 71*(2), 261-282.

Youth Partnership. (2017). Youth Knowledge #22. In M. Devlin, S. Kristensen, E. Krzaklewska, & M. Nico (Eds.), *Learning mobility, social inclusion and non-formal education: Access, process and outcomes.* Council of Europe Publishing. Retrieved from https://pjp-eu.coe.int/documents/42128013/47261623/Learning-Mobility-2018+WEB.pdf/313c137e-d76c-241c-411c-7b3b7e9a4646?t=1523284026000

Yu, H. B. (2015). Promoting Chemistry Learning through Undergraduate Work Experience in the Chemistry Lab: A Practical Approach. *Journal of Chemistry Education, 92*(3), 433-438.

Zepeda, C. D., Hlutkowsky, C. O., Partika, A. C., & Nokes-Malach, T. J. (2019). Identifying teachers' support of metacognition through classroom talk and its relation to growth in conceptual learning. *Journal of Educational Psychology, 111*(3), 522-541.

Zimmerman, B. J. (1998). Academic studying and the development of personal skill: A self-regulatory perspective. *Educational Psychologist, 33*(2/3), 73-86.

Zimmerman, B. J., & Moylan, A. R. (2009). Self-Regulation Where Metacognition and Motivation Intersect. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of Metacognition in Education.*

Appendix 1

*

Information letters/assent forms

for students who are minors

*

Information letter/Assent form for students who are minors (English)

Dear _____,

I am currently reading for a Master's degree in Teaching and Learning in Ethics Education at the University of Malta. At the end of my course I will be writing a study, entitled *Learning to Learn – The transfer of metacognitive skills from a non-formal to a formal context: A Student's perspective*. This research study is being supervised by Dr. Louis John Camilleri. Metacognition or learning to learn is the ability to develop awareness of the way you learn and your learning needs, being able to identify your own ways of learning and apply these ways accordingly. It also means gaining, processing and adapting new knowledge and skills as well as seeking and making use of guidance.

This study will help me understand the views of students on gaining and developing of metacognitive skills in a non-formal context like an Erasmus+ project and the relevance/transfer of these skills into the formal context which is school, college or university. You are invited to participate in this research study. More specifically you will help me explore your opinion on:

- Your understanding of metacognitive skills;
- Your view on the relevance and transference of metacognitive skills from a non-formal to a formal setting,
- Your views about how relevant are metacognitive skills for you;
- Your view about how skills learnt in a non-formal setting of a youth project are being transferred to a formal setting.

To collect the information, you will participate in one individual interview and in a focus group discussion of between 4 to 5 students of no more than one hour each. Your real name will not

appear anywhere in the dissertation and any records of your contribution will be destroyed after 12 months. Please note also that, as a participant, you have the right under the General Data Protection Regulation (GDPR) and national legislation to access, rectify and where applicable ask for the data concerning you to be erased. The interviews and focus group discussions will be held between April 2022 and November 2022. This will be either done in person in a location of your choice or online through Zoom platform. I will be very grateful if you choose to participate and help me collect the data for my dissertation. Please read and sign the consent letter attached should you wish to participate.

Yours sincerely,

Mary Rose Formosa

Dr. Louis John Camilleri

I, _____, give assent to participate in an individual interview and one focus group discussion regarding my views on metacognitive skills, their development, relevance and transfer from the non-formal to the formal context. I understand that:

- One individual interview and one focus group per student will take place. Each will not last more than one hour.
- Questions will be asked and notes may be written during the interview/discussion.
- In the case of an online session through Zoom, the session will be recorded and later transcribed.
- The interview/focus groups, if held in person, will be audio recorded and later transcribed.
- The information collected from the interview/focus group discussions will be used for the purpose of the research study only. It will not be published. The information will be destroyed after 12 months and once the research is complete.
- All information collected will be treated with confidence and the anonymity of the participants is guaranteed.
- The answers will not be linked to the participants in any way.
- Participation is completely voluntary, and the participant reserves the right to withdraw participation at any time during the course of the research study, without consequence and without the need for explanation. The researcher is fully committed to the students' learning journey - there is the advantage that the student will be able to process and reflect on their journey of learning during the interview and the focus group discussions.

- I can withdraw permission for using the data of the interview/discussion in which case all material will be deleted.

Should you require to ask any questions regarding the study or the procedures involved, please contact the researcher, Mary Rose Formosa,

Agreed and Accepted.

Name of Researcher	Name of Participant
MARY ROSE FORMOSA	_____
Signature of Researcher	Signature of Participant
_____	_____

Date: _____

Ittra ta' informazzjoni/formola ta' kunsens għal studenti li huma minorenni (Malti)

Għażiż/a _____,

Bħalissa qed nistudja għal Master's MTL (Masters in Teaching & Learning) ghall-grad fl-Edukazzjoni tal-Etika fl-Università ta' Malta. Fl-aħħar tal-kors tiegħi se nikteb studju, intitolat "Learning to Learn – It-trasferiment ta' ħiliet metakognittivi minn kuntest mhux formali għal kuntest formali: Perspettiva ta' Student". Dan l-istudju ta' riċerka qed jiġi sorveljat minn Dr Louis John Camilleri. Il-metakognizzjoni jew "Learning to learn" huwa l-abbiltà li tiżviluppa l-għarfien tal-mod kif titgħallem u tal-ħtiġijiet tat-tagħlim tiegħek, li tkun kapaċi tidentifika l-modi tiegħek ta' tagħlim u tapplika dawn il-modi kif xieraq. Ifisser ukoll il-kisba, l-ipproċessar u l-adattament ta' għarfien u ħiliet ġodda kif ukoll it-tfittxija u l-użu tal-gwida.

Dan l-istudju se jgħinni nifhem l-opinjonijiet tal-istudenti bħalek dwar il-kisba u l-iżvilupp ta' ħiliet metakognittivi f'kuntest mhux formali bħal dak ta' proġett Erasmus+ u r-relevanza/trasferiment ta' dawn il-ħiliet għal ġol-kuntest formali li huwa skola, kulleġġ jew università. Inti mistieden/mistiedna tipparteċipa f'dan l-istudju ta' riċerka. B'mod aktar speċifiku inti tgħinni nesplora l-opinjonijiet tiegħek dwar:

• Il-fehma tiegħek dwar ħiliet metakognittivi;

• Il-fehma tiegħek fuq ir-relevanza u t-trasferiment tal-ħiliet metakognittivi minn kuntest mhux formali għal kuntest formali,

• L-opinjonijiet tiegħek dwar kemm huma relevanti l-ħiliet metakognittivi għalik;

• Il-fehma tiegħek dwar kif il-ħiliet li tgħallimt f'kuntest mhux formali ta' proġett taż-żgħażagħ qed jiġu trasferiti għal kuntest formali.

Biex niġbor l-informazzjoni, int mistieden/a tipparteċipa f'intervista individwali waħda u f'diskussjoni ta' fokus grupp ta' bejn 4 sa 5 studenti ta' mhux aktar minn siegħa kull wieħed. L-isem personali tiegħek mhu se jidher imkien fl-istudju u kwalunkwe rekord tal-kontribuzzjoni tiegħek se tinqered wara 12-il xahar. Jekk jogħġbok innota wkoll li, bħala parteċipant, għandek id-dritt taħt ir-Regolament Ġenerali dwar il-Protezzjoni tad-Dejta (GDPR) u l-leġiżlazzjoni nazzjonali li taċċessa, tirrettifika u fejn applikabbli titlob li titħassar id-data li tikkonċernak. L-intervisti u d-diskussjonijiet tal-gruppi ta' fokus se jsiru bejn April 2022 u Novembru 2022. Dan se jsir jew personalment f'post tal-għażla tiegħek jew onlajn permezz tal-pjattaforma Zoom. Inkun grat ħafna jekk tagħżel li tipparteċipa u tgħinni niġbor id-dejta għad-dissertazzjoni tiegħi. Jekk jogħġbok aqra u ffirma l-ittra ta' kunsens mehmuża jekk tixtieq tipparteċipa b'mod voluntarju. Tista ukoll twaqqaf il-parteċipazzjoni tiegħek meta u kif trid.

Dejjem tiegħek,

Mary Rose Formosa

_____

Dr Louis John Camilleri

_____

Jien, _____, nagħti l-kunsens biex nipparteċipa f'intervista individwali u f'diskussjoni waħda ta' fokus grupp fuq opinjonijiet tiegħi dwar il- ħiliet metakognittivi, l-iżvilupp, ir-rilevanza u t-trasferiment tagħhom minn kuntest mhux formali għal dak formali. Nifhem li:

• Se isir intervista individwali u fokus grupp wieħed għal kull student. Kull wieħed mhux se jdum aktar minn siegħa.

• Se jsiru mistoqsijiet u jistgħu jinkitbu xi noti mir-ricerkatriċi waqt l-intervista/diskussjoni.

• Fil-każ ta' sessjoni onlajn permezz ta' Zoom, is-sessjoni tiġi rreġistrata u aktar tard traskritta.

• L-intervista/fokus grupp, jekk jinżammu fil-presenza, se jiġu rreġistrati bl-awdjo u aktar tard traskritti.

• L-informazzjoni miġbura mill-intervista/diskussjonijiet tal-fokus grupp se tintuża biss għall-iskop ta' dan l-istudju ta' riċerka. Mhux se tiġi ppubblikata. L-informazzjoni se tinqered wara 12-il xahar u ladarba r-riċerka titlesta.

• L-informazzjoni kollha miġbura tiġi ttrattata b'kunfidenza u l-anonimità tal-parteċipanti hija garantita.

• It-tweġibiet ma jkunux jistgħu jiġu marbuta mal-parteċipanti bl-ebda mod.

• Il-parteċipazzjoni tiegħi hija kompletament volontarja, u bħala parteċipant tirriserva d-dritt li tirtira l-parteċipazzjoni fi kwalunkwe ħin matul l-istudju ta' riċerka, mingħajr konsegwenza u mingħajr il-ħtieġa ta' spjegazzjoni. Ir-riċerkatriċi hija impenjata bis-sħiħ għall-vjaġġ tat-tagħlim tal-istudenti - hemm il-vantaġġ li inkun nista' nipproċessa u nirrifletti fuq il-vjaġġ tat-tagħlim tiegħi waqt l-intervista u d-diskussjonijiet tal-fokus grupp.

• Nista' nirtira l-permess biex juża d-dejta tal-intervista/diskussjoni f'liema każ il-materjal kollu jitħassar.

Jekk teħtieġ li tistaqsi xi mistoqsijiet dwar l-istudju jew il-proċeduri involuti, jekk jogħġbok ikkuntattja lir-riċerkatriċi, Mary Rose Formosa,

Miftiehma u Aċċettata.

Isem tar-Riċerkatriċi

MARY ROSE FORMOSA

Isem tal-Parteċipant

_____

_____

Firma tar-Riċerkatriċi

Firma tal-Parteċipant

Data _____

Appendix 2

*

Information letters/consent forms

for parents/guardians

of students who are minors

*

Date…….

Information about the study and consent for parents and guardians (English)

My name is Mary Rose Formosa and I am a student at the University of Malta, reading for a Masters in Teaching and Learning in Ethics Education. I am presently conducting research as part of my dissertation titled "Learning to Learn – The transfer of metacognitive skills from a non-formal to a formal context: A student's perspective". I am being supervised by Dr. Louis John Camilleri . The aim of my study is to develop an understanding of student perspectives on the acquisition and development of metacognitive skills in a non-formal education setting (Erasmus+ youth mobility project) and the relevance/application/transfer of these skills into the formal education setting. Metacognition or learning to learn is the ability to develop awareness of the way you learn and your learning needs, being able to identify your own ways of learning and apply these skills accordingly. It also means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance.

Your son's/daughter's participation

Any data collected from this research will be used solely for purposes of this study and as part of a wider research. Should your son/daughter choose to participate, he/she will be asked to participate in an individual interview and a focus group discussion of 4 – 5 persons, each not lasting for more than one hour. These will be either held in person or online through Zoom platform. Data collected will be collected through use of an individual interview lasting not more

than 1 hour and a focus group discussion involving another 4 - 5 young people not lasting more than 1 hour.

Participation of your son/daughter in this study is entirely voluntary; in other words, he/she are free to accept or refuse to participate, without needing to give a reason. An information/assent form is also being presented to your son/daughter so his/her assent is also obtained. Your son/daughter are also free to withdraw from the study at any time, without needing to provide any explanation and without any negative repercussions for him/her. Should he/she choose to withdraw, any data collected will be erased as long as this is technically possible (for example, before it is anonymised or published), unless erasure of data would render impossible or seriously impair achievement of the research objectives, in which case it shall be retained in an anonymised form.

If your son/daughter will choose to participate, please note that there are the following direct benefits: the interview and focus group discussion will offer an opportunity to process and reflect upon his/her journey of learning individually and as part of a group. The participation of your son/daughter does not entail any known or anticipated risks.

Data Management

The data collected will be treated confidentially and anonymised by using pseudonyms. It will be stored in a password protected computer and destroyed after 12 months from the completion of this study. Only my supervisor and I will have access to the data.

Please note also that, as the parent/guardian of a participant who is a minor, you have the right under the General Data Protection Regulation (GDPR) and national legislation to access, rectify and where applicable ask for the data concerning you to be erased. All data collected will be stored in an anonymised form on completion of the study and destroyed after 12 months.

His/her identity will be revealed/attributed only with your consent.

Parent's /guardian's consent

Name of son/daughter …….

- I hereby declare to have read the information about the nature of the study, my son's/daughter's involvement and data management.
- I have had the opportunity to ask questions about the study and my questions have been satisfactorily answered.
- I declare that I am 18 years or older.

  I understand that should I have any further queries, I can contact Mary Rose Formosa or Dr. Louis John Camilleri

- I consent for my son/daughter to participate in this research study.

MARY ROSE FORMOSA

_____	_____
Parent/guardian's name (in block)	Researcher's name (in block)
_____	_____
Parent/guardian signature	Researcher's signature

Date _____

Data…….

Informazzjoni dwar l-istudju u kunsens għall-ġenituri u l-kustodji (Malti)

Jisimni Mary Rose Formosa u jien studenta fl-Università ta' Malta. Qed nistudja għal grad ta' MTL (Masters in Teaching & Learning) fl-Edukazzjoni tal-Etika. Bħalissa qed nagħmel riċerka bħala parti minn studju tiegħi bit-titlu "Learning to Learn – It-trasferiment ta' ħiliet metakognittivi minn kuntest mhux formali għal kuntest formali: Perspettiva ta' student". Qed niġi sorveljata minn Dr Louis John Camilleri . L-għan tal-istudju tiegħi huwa li niżviluppa fehim tal-perspettivi tal-istudenti dwar il-kisba u l-iżvilupp ta' ħiliet metakognittivi f'edukazzjoni mhux formali (proġett ta' mobilità taż-żgħażagħ Erasmus+) u r-rilevanza/applikazzjoni/trasferiment ta' dawn il-ħiliet għal-kuntest tal-edukazzjoni formali. Il-metakognizzjoni jew "Learning to Learn" hija l-abbiltà li tiżviluppa l-għarfien tal-mod kif titgħallem u l-ħtiġijiet tat-tagħlim tiegħek, li tkun kapaċi tidentifika modi tiegħek stess ta' kif titgħallem u tapplika dawn il-ħiliet kif hu xieraq. Ifisser ukoll il-kisba, l-ipprocessar u l-assimilazzjoni ta' għarfien u ħiliet ġodda kif ukoll li tfittex u tagħmel użu minn gwida.

Il-parteċipazzjoni ta' ibnek/bintek minorenni

Kwalunkwe data miġbura minn din ir-riċerka se tintuża biss għal skopijiet ta' dan l-istudju u bħala parti minn riċerka. Jekk ibnek/bintek j/tagħżel li tipparteċipa, hu/hi se tintalab tipparteċipa f'intervista individwali u f'diskussjoni ta' fokus grupp ta' bejn 4 – 5 persuni, kull waħda ma ddumx għal aktar minn siegħa. Dawn se jsiru jew fil-presenza jew onlajn permezz tal-pjattaforma Zoom. Id-dejta miġbura tinġabar permezz ta' intervista individwali li ddum mhux aktar minn siegħa u diskussjoni ta' fokus grupp li tinvolvi 4 jew 5 żgħażagħ oħra li ma ddumx aktar minn siegħa.

Il-parteċipazzjoni ta' ibnek/bintek f'dan l-istudju hija għal kollox volontarja; fi kliem ieħor, huwa/hija huwa liberi li j/taċċetta jew j/tirrifjuta li j/tipparteċipa, mingħajr il-bżonn li j/tagħti raġuni. Qed tiġi ppreżentata wkoll formola ta' informazzjoni/kunsens lil ibnek/bintek sabiex jinkiseb ukoll il-kunsens tiegħu/tagħha. Ibnek/bintek huma liberi wkoll li jirtiraw mill-istudju fi kwalunkwe ħin, mingħajr il-bżonn li jipprovdu xi spjegazzjoni u mingħajr ebda riperkussjonijiet negattivi għalihom. Jekk huwa/hija jagħżel li jirtira, kwalunkwe data miġbura titħassar sakemm dan ikun teknikament possibbli (pereżempju, qabel ma tiġi anonimizzata jew ippubblikata), sakemm it-tħassir tad-data ma jagħmilx impossibbli jew ifixkel serjament il-kisba tal-għanijiet tar-riċerka, liema każ għandu jinżamm f'forma anonima.

Jekk ibnek jew bintek tagħżel li tieħu sehem, jekk jogħġbok innota li hemm il-vantaġġ li ibnek/bintek tkun tista' tipproċessa u tirrifletti fuq il-vjaġġ tat-tagħlim tiegħu/tagħha waqt l-intervista u d-diskussjonijiet tal-fokus grupp. Ma hemm l-ebda riskju jew periklu antiċipat għal ibnek jew bintek.

Ġestjoni tad-Data

Id-dejta miġbura tiġi ttrattata b'mod kunfidenzjali u anonimizzata bl-użu ta' psewdonimi. Din se tinħażen f'kompjuter protett bil-password u tinqered wara 12-il xahar mit-tmiem ta' dan l-istudju. Jien u s-superviżur tiegħi biss se jkollna aċċess għad-dejta.

Jekk jogħġbok innota wkoll li, bħala ġenitur/kustodju ta' parteċipant li huwa minorenni, għandek id-dritt taħt ir-Regolament Ġenerali dwar il-Protezzjoni tad-Dejta (GDPR) u l-leġiżlazzjoni nazzjonali li taċċessa, tirrettifika u fejn applikabbli titlob li titħassar id-data li tikkonċernak lil ibnek jew bintek. Id-dejta kollha miġbura tinħażen f'forma anonima mat-tlestija tal-istudju u tinqered wara 12-il xahar.

L-identità tiegħu/tagħha tiġi żvelata/attribwita biss bil-kunsens tiegħek.

---------- ---------- ----------

Kunsens tal-ġenitur/kustodju

Isem it-tifel/tifla …….

B’dan niddikjara li qrajt l-informazzjoni dwar in-natura tal-istudju, l-involviment ta’ ibni/binti u l-ġestjoni tad-dejta.

Kelli l-opportunità li nagħmel mistoqsijiet dwar l-istudju u l-mistoqsijiet tiegħi ġew imwieġba b'mod sodisfaċenti.

Niddikjara li għandi 18-il sena jew aktar.

Nifhem li jekk ikolli xi mistoqsijiet oħra, nista' nikkuntattja lil Mary Rose Formosa

jew lil Dr. Louis John Camilleri

Nagħati kunsens li ibni/binti tipparteċipa f'dan l-istudju ta' riċerka.

MARY ROSE FORMOSA

_____ _____

Isem tal-ġenitur/kustodju (fil-blokk) Isem tar-riċerkatriċi (fil-blokk)

_____ _____

Firma tal-ġenitur/kustodju Firma tar-riċerkatriċi

Data _____

Appendix 3

*

Information letters/consent forms

for students (18+ years)

*

Date…….

Information about the study and consent form for students aged 18 plus (English)

My name is Mary Rose Formosa and I am a student at the University of Malta, reading for a Masters in Teaching and Learning in Ethics Education. I am presently conducting research as part of my dissertation titled Learning to Learn – The transfer of metacognitive skills from a non-formal to a formal context: A student's perspective. This is being supervised by Dr. Louis John Camilleri . The aim of my study is to develop an understanding of student perspectives on the acquisition and development of metacognitive skills in a non-formal education setting (Erasmus+ youth mobility project) and the relevance/application/transfer of these skills into the formal education setting. Metacognition or learning to learn is the ability to develop awareness of the way you learn and your learning needs, being able to identify your own ways of learning and apply these skills accordingly. It also means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance.

Your Participation

Any data collected from this research will be used solely for purposes of this study and as part of a wider research. Should you choose to participate, you will be asked to participate in an individual interview and a focus group discussion of 4 – 5 persons, each not lasting for more than one hour. These will be either held in person or online through Zoom platform. Data collected will be collected through use of an individual interview lasting not more than 1 hour and a focus group discussion involving 4 - 5 young people not lasting more than 1 hour.

Participation in this study is entirely voluntary; in other words, you are free to accept or refuse to participate, without needing to give a reason. You are also free to withdraw from the study at any time, without needing to provide any explanation and without any negative repercussions for

you. Should you choose to withdraw, any data collected from you will be erased as long as this is technically possible (for example, before it is anonymised or published), unless erasure of data would render impossible or seriously impair achievement of the research objectives, in which case it shall be retained in an anonymised form.

If you choose to participate, please note that there are the following direct benefits to you: the interview and focus group discussion will offer you an opportunity to process and reflect upon your journey of learning individually and as part of a group. Your participation does not entail any known or anticipated risks.

Data Management

The data collected will be treated confidentially and anonymised by using pseudonyms. It will be stored in a password protected computer and destroyed after 12 months from the completion of this study. Only my supervisor and I will have access to the data.

Please note also that, as a participant, you have the right under the General Data Protection Regulation (GDPR) and national legislation to access, rectify and where applicable ask for the data concerning you to be erased.

Your identity will be revealed/attributed only with your consent.

Participant's consent

- I hereby declare to have read the information about the nature of the study, my involvement and data management.
- I have had the opportunity to ask questions about the study and my questions have been satisfactorily answered.

- I declare that I am 18 years or older.
- I declare that participation in this study is entirely voluntary; in other words, I am free to accept or refuse to participate, without needing to give a reason. I am also free to withdraw from the study at any time, without needing to provide any explanation and without any negative repercussions.

  I understand that should I have any further queries, I can contact Mary Rose Formosa or Dr. Louis John Camilleri

- I agree to participate in this research study.

_____	_____
Participant's name (in block)	Researcher's name MARY ROSE FORMOSA
_____	_____
Participant' signature	Researcher's signature

Date _____

Data…….

<u>Informazzjoni dwar l-istudju u kunsens għal studenti ta iktar minn 18-il sena (Malti)</u>

Jisimni Mary Rose Formosa u jien studenta fl-Università ta' Malta. Qed nistudja għal grad ta' MTL (Masters in Teaching & Learning) fl-Edukazzjoni tal-Etika. Bħalissa qed nagħmel riċerka bħala parti minn studju tiegħi bit-titlu "Learning to Learn – It-trasferiment ta' ħiliet metakognittivi minn kuntest mhux formali għal kuntest formali: Perspettiva ta' student" Dan l-istudju qed jiġi sorveljat minn Dr. Louis John Camilleri). L-għan tal-istudju tiegħi huwa li niżviluppa fehma fuq perspettivi tal-istudenti dwar l-akkwist u l-iżvilupp ta' ħiliet metakognittivi f'ambjent ta' edukazzjoni mhux formali (proġett ta' mobilità taż-żgħażagħ Erasmus+) u r-rilevanza/applikazzjoni/trasferiment ta' dawn il-ħiliet għal kuntest formali. Il-metakognizzjoni jew il-Learning to Learn hija l-abbiltà li tiżviluppa l-għarfien tal-mod kif titgħallem u l-bżonnijiet ta' tagħlim tiegħek, li tkun kapaċi tidentifika l-modi tiegħek ta' kif titgħallem u tapplika dawn il-ħiliet kif xieraq. Ifisser ukoll li tikseb, tipproċessa u tassimila għarfien u ħiliet ġodda kif ukoll li tfittxu u tagħmel użu minn gwida.

Il-Parteċipazzjoni Tiegħek

Kwalunkwe dejta miġbura minn din ir-riċerka se tintuża biss għal skopijiet ta' dan l-istudju u bħala parti minn din ir-riċerka. Jekk tagħżel li tipparteċipa, tintalab tipparteċipa f'intervista individwali u f'diskussjoni ta' fokus grupp ta' bejn 4 – 5 persuni, li kull waħda ma ddumx għal aktar minn siegħa. Dawn se jsiru jew fi presenza jew onlajn permezz tal-pjattaforma Zoom. Id-

dejta miġbura tinġabar permezz ta' intervista individwali li ddum mhux aktar minn siegħa. Il-parteċipazzjoni tiegħek f'dan l-istudju hija għal kollox volontarja; fi kliem ieħor, inti liberu/a li taċċetta jew tirrifjuta li tipparteċipa, mingħajr ma jkollok bżonn li tagħti raġuni. Int liberu wkoll li tirtira mill-istudju fi kwalunkwe ħin, mingħajr il-bżonn li tipprovdi ebda spjegazzjoni u mingħajr ebda riperkussjonijiet negattivi għalik. Jekk tagħżel li tirtira, kwalunkwe data miġbura mingħandek titħassar sakemm dan ikun teknikament possibbli (pereżempju, qabel ma tiġi anonimizzata jew ippubblikata), sakemm it-tħassir tad-data ma jagħmilx impossibbli jew ifixkel serjament il-kisba tal-għanijiet tar-riċerka, liema każ għandu jinżamm f'forma anonima.

Jekk tagħżel li tipparteċipa, jekk jogħġbok innota li hemm il-benefiċċji diretti li ġejjin għalik: l-intervista u d-diskussjoni tal-fokus grupp joffrulek opportunità biex tipproċessa u tirrifletti fuq il-vjaġġ tiegħek ta' tagħlim individwalment u bħala parti minn grupp. Il-parteċipazzjoni tiegħek ma tinvolvi l-ebda riskju magħruf jew antiċipat.

<u>Ġestjoni tad-Data</u>

Id-dejta miġbura tiġi ttrattata b'mod kunfidenzjali u anonimizzata bl-użu ta' psewdonimi. Din se tinħażen f'kompjuter protett bil-password u tinqered wara 12-il xahar mit-tmiem ta' dan l-istudju. Jien u s-superviżur tiegħi biss se jkollna aċċess għad-dejta.

Jekk jogħġbok innota wkoll li, bħala parteċipant, għandek id-dritt taħt ir-Regolament Ġenerali dwar il-Protezzjoni tad-Dejta (GDPR) u l-leġiżlazzjoni nazzjonali li taċċessa, tirrettifika u fejn applikabbli titlob li titħassar id-data li tikkonċernak.

L-identità tiegħek tiġi żvelata/attribwita biss bil-kunsens tiegħek.

Kunsens tal-parteċipant

- B'dan niddikjara li qrajt l-informazzjoni dwar l-għan tal-istudju, il-parteċipazzjoni tiegħi u l-ġestjoni tad-dejta.
- Kelli l-opportunità li nagħmel mistoqsijiet dwar l-istudju u l-mistoqsijiet tiegħi ġew imwieġba b'mod sodisfaċenti.
- Niddikjara li għandi 18-il sena jew aktar.
- Niddikjara li jien liberu/a li naċċetta jew nirrifjuta li nipparteċipa, mingħajr ma ikolli bżonn li nagħti raġuni. Jien liberu/a wkoll li nirtira mill-istudju fi kwalunkwe ħin, mingħajr il-bżonn li nipprovdi ebda spjegazzjoni u mingħajr ebda riperkussjonijiet negattivi għalija.
- Nifhem li jekk ikolli xi mistoqsijiet oħra, nista' nikkuntattja lil Mary Rose Formosa jew lil Dr. Louis John Camilleri
- Naqbel li nipparteċipa f'dan l-istudju ta' riċerka.

MARY ROSE FORMOSA

_____ _____

Isem tal-parteċipant (fil-blokk) Isem tar-riċerkatriċi (in blocks)

_____ _____

Firma tal-parteċipant Firma tar-riċerkatriċi

Data _____

Appendix 4

*

Social Media Post

*

Social media post (English)

My name is Mary Rose Formosa. I am currently reading for a Master's degree in Teaching and Learning in Ethics Education at the University of Malta. I will be writing a dissertation, entitled "*Learning to Learn – The transfer of metacognitive skills from a non-formal to a formal context: A student's perspective"*. I am supervised by Dr. Louis John Camilleri.

This dissertation will help me understand the views of students on the acquisition and development of metacognitive skills in a non-formal context of an Erasmus+ project and the relevance/transfer of these skills into the formal context which is school, college or university. Metacognition or learning to learn is the ability to develop awareness of the way you learn and your learning needs, being able to identify your own ways of learning and apply these skills accordingly. It also means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance.

I am looking for students, aged between 13 and 30 years of age and who have participated in an Erasmus+ youth project, to attend for an individual interview and one focus group discussion to inform my study. If you are interested in knowing more about this study, please contact me by private message or by e-mail on . Any data collected from this research will be used solely for purposes of this study.

Thank you.

Mary Rose Formosa
Student

Post għal fuq medja soċjali (Malti)

Jisimni Mary Rose Formosa u bħalissa qed nistudja għall-grad ta' MTL (Masters in Teaching & Learning) fl-Edukazzjoni tal-Etika fl-Università ta' Malta. Se nikteb studju bit-titlu "Learning to Learn – It-trasferiment ta' ħiliet metakognittivi minn kuntest mhux formali għal kuntest formali: Perspettiva ta' student". Jiena ssorveljata minn Dr Louis John Camilleri.

Dan l-istudju se jgħini nifhem il-fehmiet tal-istudenti dwar l-akkwist u l-iżvilupp ta' ħiliet metakognittivi f'kuntest mhux formali ta' proġett Erasmus+ u r-rilevanza/trasferiment ta' dawn il-ħiliet fil-kuntest formali li huwa skola, kulleġġ jew università. Il-metakognizzjoni jew "Learning to learn" hija l-abbiltà li tiżviluppa l-għarfien tal-mod kif titgħallem u l-ħtiġijiet tat-tagħlim tiegħek, li tkun kapaċi tidentifika l-modi tiegħek ta' kif titgħallem u tapplika dawn il-ħiliet kif hu xieraq. Ifisser ukoll il-kisba, l-ipproċessar u l-assimilazzjoni ta' għarfien u ħiliet ġodda kif ukoll it-tfittxija u l-użu ta' xi ħadd li jkun ta' gwida għalik.

Qed infittex studenti, ta' bejn it-13 u it-30 sena li pparteċipaw fi proġett taż-żgħażagħ Erasmus+, biex jattendu għal intervista individwali u diskussjoni waħda ta' fokus grupp ta' bejn 4 u 5 studenti biex jinformaw l-istudju tiegħi. Jekk inti interessat/a li tkun taf aktar dwar dan l-istudju, jekk jogħġbok ikkuntattjani b'messaġġ privat jew b'e-mail fuq mary.r.formosa.15@um.edu.mt. Kwalunkwe dejta miġbura minn din ir-riċerka se tintuża biss għall-finijiet ta' dan l-istudju.

Grazzi.

Mary Rose Formosa

Studenta

Appendix 5

*

Interview guide

*

Interview guide for individual interview (English)

1. Have you ever heard the term metacognition or metacognitive skills?
2. What is your understanding of metacognitive skills or learning to learn?

[Prompt: Let me read the definition…….

Metacognition or learning to learn is

1. the ability to develop awareness on the way you learn and your learning needs,
2. being able to identify your own ways of learning and apply these skills accordingly.
3. It also means gaining, processing and integrating new knowledge and skills
4. as well as seeking and making use of guidance.

Example:

Before a Task - Is this similar to a previous task? What do I want to achieve? What should I do first? During The Task - Am I on the right track?

Examples of Metacognitive Strategies could be the following….

- identifying one's own learning style and needs.
- planning for a task.
- gathering and organising materials.
- arranging a study space and schedule.
- monitoring mistakes.
- evaluating task success.
- evaluating the success of any learning strategy and adjusting.

3. How do you think metacognitive skills (knowledge about your way of learning / study methods/tools) could help a student learn better and faster?

4. Do you think you were able to develop metacognitive skills during the youth project?

   [Prompt: What metacognitive skills do you feel you have developed, some examples?

5. Which activities or methods do you think helped you develop these metacognitive kills during the youth meetings?
6. What methods or who helped you develop these skills?
7. Do you feel that the skills developed through the activities of the youth project are relevant to you at school/university to help you learn better and faster?

   [Prompt: How do you think these skills are relevant to you to discover and develop your own way of learning? Ex to acquire, monitor or reflect on or evaluate knowledge at school/college/university?

8. Do you feel you are able to transfer these skills from the setting of the youth project to support you in your studies in school or university?
9. Which metacognitive skills do you think you have transferred from the youth group setting to your school context?
10. Did you use any of the skills developed during youth group activities at school?
11. How were these transferred skills useful in your studies?

    [Prompt: What do you think would have worked for you to develop these skills during the activities of the youth project?]

***

Gwida ta’ intervista għal intervista individwali (Malti)

1. Qatt smajt it-terminu metakognizzjoni jew ħiliet metakognittivi?

2. X'inhi l-fehma tiegħek fuq il-ħiliet metakognittivi jew il-“Learning to Learn”?

[Prompt: Ħallini naqra d-definizzjoni…….

Metacognition jew “Learning to Learn” huwa

1. il-ħila li tiżviluppa għarfien dwar il-mod kif titgħallem u l-ħtiġijiet tat-tagħlim tiegħek;

2. li tkun kapaċi tidentifika l-modi tiegħek ta' tagħlim u tapplika dawn il-ħiliet kif xieraq;

3. il-kisba, l-ipproċessar u l-integrazzjoni ta’ għarfien u ħiliet ġodda

4. li taf tfittex u tagħmel użu minn gwida għat-tagħlim tiegħek.

Eżempju:

Qabel tibda biċċa xogħol tistaqsi – Dan ix-xogħol gieli għamilt bħalu qabel? X’irrid nikseb b’dan ix-xogħol? X'għandi nagħmel l-ewwel? Waqt li qed naħdem nistaqsi- Jien miexi/miexja fit-triq it-tajba?

Eżempju ta' Strateġiji Metakognittivi jista' jkunu dawn li ġejjin....

• l-identifikazzjoni tal-istil ta' tagħlim u l-bżonnijiet tiegħek stess;

• tippjana biex tagħmel biċċa xogħol;

• il-ġbir u l-organizzazzjoni ta' materjali.

• tirranġa spazju u skeda għall-istudju.

• monitoraġġ ta' l-żbalji.

• evalwazzjoni tas-suċċess tal-kompitu.

• evalwazzjoni tas-suċċess ta' kwalunkwe strateġija ta' tagħlim u l-aġġustament.]

3. Kif taħseb li l-ħiliet metakognittivi (għarfien dwar il-mod ta' tagħlim tiegħek/metodi ta' studju/għodod) jistgħu jgħinu lill-istudent jitgħallem aħjar u aktar malajr?

4. Taħseb li kont kapaċi tiżviluppa ħiliet metakognittivi waqt il-proġett taż-żgħażagħ?

[Prompt: Liema ħiliet metakognittivi tħoss li żviluppajt, xi eżempji?]

5. Liema attivitajiet jew metodi taħseb li għenuk tiżviluppa dawn il-ħiliet metakognittiv waqt il-laqgħat taż-żgħażagħ?

6. Liema metodi għenuk jew min għenek tiżviluppa dawn il-ħiliet?

7. Tħoss li l-ħiliet żviluppati permezz tal-attivitajiet tal-proġett taż-żgħażagħ huma rilevanti għalik fl-iskola/università biex jgħinuk titgħallem aħjar u aktar malajr?

[Prompt: Kif taħseb li dawn il-ħiliet huma rilevanti għalik biex tiskopri u tiżviluppa l-mod tiegħek ta' tagħlim? Ex biex takkwista, timmonitorja jew tirrifletti fuq jew tevalwa l-għarfien fl-iskola/kulleġġ/università?]

8. Tħoss li kapaċi tittrasferixxi dawn il-ħiliet mill-kuntest tal-proġett taż-żgħażagħ biex jgħinuk fl-istudji tiegħek fl-iskola jew fl-università?

9. Liema ħiliet metakognittivi taħseb li trasferijt mill-kuntest tal-grupp taż-żgħażagħ għall-kuntest tal-iskola tiegħek?

10. Użajt xi ħiliet żviluppati waqt l-attivitajiet tal-grupp taż-żgħażagħ fl-iskola?

11. Kif kienu ta' għajnuna dawn il-ħiliet li trasferejt fl-istudji tiegħek?

[Prompt: X'taħseb li seta' ħadem għalik biex żviluppajt dawn il-ħiliet waqt l-attivitajiet tal-proġett taż-żgħażagħ?]

Appendix 6

*

Ethical Clearance

*

L-Università ta' Malta

Faculty of Education
University of Malta
Msida MSD 2080, Malta

Tel: +356 2340 3058/2932
educ@um.edu.mt

www.um.edu.mt/educ

27th July 2022

RE: Application for Research Ethics Clearance EDUC-2022-00200 Mary Rose Formosa

Dear Mary Rose Formosa,

With reference to your application EDUC-2022-00200 Mary Rose Formosa for Research Ethics clearance, I am pleased to inform you that **FREC finds no ethical or data protection issues in terms of content and procedure**.

You may therefore proceed to approach potential informants to collect data using the tools/documents outlined in this application.

You are reminded that it is your responsibility - under the guidance of your supervisor - to distribute Information Letters and Consent/Assent Forms that are written in appropriate and correct English and Maltese.

Yours sincerely

Dr Joseph Gravina
Chairperson Faculty Research Ethics Committee
Faculty of Education

***

The End

***