Why do people go to university and why does it matter?
Understanding differences in student experiences via a quantitative analysis of student reflexivity and student motivations.

Richard Gordon Remelie

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Abstract

Underpinned by the philosophy of Critical Realism, this thesis provides new ways to explain differences in student experiences of university. It achieves this by presenting quantitative evidence of statistically significant relationships between student motivations and student reflexivity. This evidence suggests that reflexivity has a stronger bearing on student experiences than is accounted for via Bourdieu's concepts of habitus, capital, and field, which constitute the most common framework through which student experiences have been analysed in previous research. Building on the work of Margaret Archer, this thesis created new quantitative measures of communicative, autonomous, meta, and fractured reflexivity. The new measures of reflexivity were built into a survey alongside new measures of motivation which were derived from Self-Determination Theory. Using a sample of 336 students from a post-1992 university, Exploratory and Confirmatory Factor Analysis revealed that new measures of meta and fractured reflexivity were valid and internally reliable, as were measures of intrinsic, extrinsic, and amotivation. This made it possible to analyse relationships between student reflexivity and student motivations, which revealed that reflexivity and motivations appear to be significantly related. This evidence highlights the importance of reflexivity for student experiences, given what is known from Self-Determination Theory about how human motivations influence the quality of human experiences. Therefore, although further work is needed to replicate the empirical findings and develop better measures of communicative and autonomous reflexivity, this thesis has begun to show the importance of student reflexivity for student experiences. More specifically, the evidence in this thesis suggests that meta reflexivity is likely to enhance student experiences, given that meta reflexivity is positively associated with intrinsic motivation and negatively associated with amotivation. On the other hand, fractured reflexivity is likely to undermine the quality of student experiences, given that fractured reflexivity is positively associated with amotivation. By creating new measures of reflexivity and showing that analysis of reflexivity can be developed by integrating measures of motivation from Self-Determination Theory, this thesis presents opportunities for researchers to explore the implications of reflexivity for student experiences and for human experiences in other domains.

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Introduction

The ideas for this PhD emerged in response to my experiences as an undergraduate student. In short, I became concerned that the ways many students were making decisions was constraining their development in multiple ways and undermining the quality of their educational experiences. Some students were clearly enthusiastic about being at university – they attended lectures and seminars, participated in class discussions, and engaged in extracurricular activities. However, I regularly noticed that many students had very little enthusiasm for being at university and only chose to participate in the bare minimum, which typically equated to a limited number of timetabled classes where the content was likely to help them with their assessment. The reasons for these differences were unclear, but it seemed to me that the enthusiastic students who engaged with everything available to them gained more from university in terms of learning and experiences. In contrast, if they adopted a strategic 'cherry-picking' approach when deciding which classes to attend and what to engage with, students seemed to gain less from university in terms of learning and experience. It is largely because of these reasons that I became interested in why people go to university and why this matters. More specifically, I decided to investigate how a person's motivations for going to university can influence the ways they make decisions and, ultimately, the quality of their student experiences.

…

A recent systematic literature review by Matus et al. (2021) revealed that the term 'student experience' lacks a widely accepted meaning. Moreover, some scholars argue that the "fuzziness" of the term 'student experience' makes it "ill equipped as a sociological concept" (Potschulat et al. 2021: 5). Nonetheless, student experience has become "a staple component of the policy and strategic planning documents of individual universities and the [higher education] sector more generally" (Potschulat, 2021: 8), and many studies have explored student experience empirically (e.g., Meehan and Howells, 2018; Bates et al. 2019; Dollinger and Lodge, 2019; Heron, 2020). Furthermore, as will be explained in the literature review, Jones (2018) has proposed a conceptual framework of student experiences and the key factors that influence student experiences. Therefore, notwithstanding Potschulat et al.'s (2021) concerns and the fact that 'student experience' lacks a widely accepted meaning, numerous scholars clearly believe that student experience can be conceptualised

precisely enough to justify its usage in social science. This thesis will build on existing student experience research by analysing some of the mechanisms which underpin all aspects of student experience.

Aspects of student experience have most typically been analysed via the work of Pierre Bourdieu. This includes studies of *student transitions to university* (Balmer et al. 2015; Reay, 2018); studies of *educational success and class* (Ingram, 2011); and studies of *student identities* (Abrahams and Ingram, 2013; Crozier et al. 2019). From the Bourdieusian perspective, the quality of student experiences is determined by the extent to which a student's *habitus* and capital(s) (e.g., social, economic, cultural, symbolic) align with their educational field.

One of the merits of the Bourdieusian framework is that it helps to explain differences in experiences *between* groups of students because it shows that some groups of students (e.g., middle-class students) typically have better experiences at university than other groups of students (e.g., working-class students). For example, through concepts like *habitus*, *capital*, and *field* (explained in section 2.2.3), the Bourdieusian framework enables us to analyse some of the ways in which the quality of a student's university experiences can be influenced by the student's background. More specifically, Bourdieusian studies of student experiences illustrate that the quality of student experiences is not merely influenced by the economic resources a student has access to, but by their cultural, social, and symbolic resources, and by the extent to which those resources enable the student to 'fit in' at university (Reay et al. 2010). As such, the Bourdieusian framework illuminates the social exclusion that some students face at university which can lead to disparities in the experiences of different groups of students, such as between working-class and middle/upper-class students at elite universities (Reay et al. 2010; Reay, 2018; Reay 2021).

However, despite the important contributions of Bourdieusian studies of student experiences, a limitation of the Boudiesian framework is that it tends to emphasise the role of social conditioning and downplay the role of conscious deliberation (Elder-Vass, 2007). For example, Bourdieu's concept of *habitus* rightly emphasises the important role that social conditioning plays in influencing human behaviour, but the nature of reflexivity is "something of a mystery in [Bourdieu's] work", even though Bourdieu was clearly not oblivious to the question of reflexivity (Crossley, 2001: 117). This could be why Bourdieusian studies of student experiences tend to emphasise the importance of structural, cultural, and economic factors, while the causal powers of individual

agency are relatively underexplored, such as our ability to consciously deliberate on our circumstances in different ways and make conscious decisions (Elder-Vass, 2007). For this reason, Bourdieusian studies of student experiences are limited in their ability to explain why student experiences differ *within* groups of students whose individual members are similarly positioned in terms of the factors that are typically analysed in Bourdieusian studies of student experiences, such as *habitus*, *capital*, and *field* (e.g., Reay, 2021).

Therefore, this thesis goes beyond the Bourdieusian framework by arguing that our understanding of differences in student experiences can be improved via an analysis of individual-level phenomena such as motivations and reflexivity, especially if we wish to explain individual-level differences in the experiences of students who are similarly positioned in terms of Bourdieusian concepts such as habitus, capital, and field (e.g., working-class students). It will be shown that the work of Margaret Archer facilitates that kind of analysis by providing a framework of reflexivity which explains differences in the decision-making processes of students that the Bourdieusian framework does not account for. The implications of different modes of reflexivity for student experiences will then be explored by integrating Self-Determination Theory and analysing relationships between student reflexivity and student motivations. Incorporating Self-Determination Theory enables us to deepen the analysis of reflexivity and explain why the motivations that shape reflexivity can influence the quality of student experiences.

Overview of the Thesis

The Literature Review presents a review of relevant student experience literature and then discusses the framework provided by Pierre Bourdieu, which appears to be the most common framework through which aspects of student experiences have been analysed. The Literature Review concludes that, despite the merits of Bourdieusian studies, our explanations of differences in student experiences can be improved via the work of Margaret Archer, primarily because Archer provides a more elaborate theory of reflexivity than Bourdieu. Hence, the Literature Review presents Archer's framework of reflexivity and discusses why it was necessary to address some issues with Archer's quantitative measures of reflexivity. The Literature Review then argues that analyses of reflexivity via Archer's framework can be developed by integrating

Self-Determination Theory, which makes it possible to test for relationships between reflexivity and motivations. To this end, the final part of the Literature Review provides an overview of Self-Determination Theory which emphasises the importance of human motivations and explains why it is worth analysing relationships between student motivations and student reflexivity.

The Methodology Chapter articulates the methodological underpinnings of this thesis and their implications. It also explains and justifies how quantitative empirical research was conducted in this thesis to address the gaps and issues identified in the Literature Review, which warranted the creation of new reflexivity and motivation measures.

The Findings Chapter presents the Exploratory and Confirmatory Factor Analysis of the reflexivity measures and motivation measures. It also presents a summary of the statistical analysis of relationships between the valid and internally reliable measures of reflexivity and motivations.

The Discussion Chapter discusses and evaluates the attempts in this thesis to create new valid and internally reliable measures of reflexivity and motivation. It also discusses the results of the tests for relationships between reflexivity and motivations and explains how the empirical findings of this thesis contribute to student experience literature.

Finally, this thesis concludes by considering the strengths, limitations, and implications of this thesis, before making recommendations to researchers and student stakeholders.

Chapter 1: Literature Review

1.1 Overview of the Literature Review

The Literature Review is divided into three parts. Part One will review relevant student experience literature and the framework provided by Pierre Bourdieu, which appears to be the most common framework through which aspects of student experiences have been analysed. Part One concludes that, despite the merits of Bourdieusian studies, our explanations of differences in student experiences can be improved via the work of Margaret Archer, primarily because Archer provides a more elaborate theory of reflexivity than Bourdieu.

Part Two of the Literature Review presents an overview of Archer's framework of reflexivity. It then discusses issues with Archer's (2007) reflexivity measures that were identified by Meriton (2016) and explains why it was necessary to address those issues in this thesis. Part Two of the Literature Review concludes that analysis of reflexivity via Archer's framework can be developed by integrating Self-Determination Theory, which can help us to understand the implications of student reflexivity for student experiences via measures of student motivations.

Finally, Part Three of the Literature Review presents an overview of Self-Determination Theory which explains why motivations are important aspects of all student experiences because of their relationship to psychological wellbeing. Part Three concludes by justifying the inclusion of measures of motivations alongside new reflexivity measures so that relationships between motivations and reflexivity could be tested in this thesis.

1.2 Literature Review Part One: Review of Student Experience Literature

In the book *Experience and Education*, John Dewey (1938: 8) argued that "it is not enough to insist upon the necessity of experience [in education], nor even of activity in experience. Everything depends on the *quality* of the experience which is had." Moreover, Dewey argued that because "every experience lives on in further experiences. […] the central problem of an education based upon experience is to select the kind of present experiences that live fruitfully and creatively in subsequent experiences" (Dewey, 1938: 27-28). As Dewey saw it, "the ultimate reason for hospitality to progressive education […] goes back to the fact that discrimination is

made between the inherent values of different experiences." (Dewey, 1938: 35). This raises questions about how researchers can indicate differences in the quality of student experiences, and what grounds there are for arguing that some kinds of student experiences are preferable to others. Furthermore, if we can agree that some kinds of student experiences (e.g., enthusiasm, curiosity, and a sense of belonging) are indeed preferable to other kinds of student experiences (e.g., boredom and alienation), then this raises questions about how we can maximise the likelihood of students having the most preferable kinds of experiences so that they are more likely to enjoy being at university and more likely to make the most of their opportunities.

Over the past two decades, the term 'student experience' has become "a staple component of the policy and strategic planning documents of individual universities and the [higher education] sector more generally" (Potschulat, 2021: 8). However, despite its prevalence, Jones (2018: 1040) argues that 'student experience' is "remarkably under-developed as a construct in the academic literature" and "researchers have been surprisingly reticent at discussing, debating and articulating" the meaning of this "widely used but undefined and under-theorised term."

Such issues led Potschulat et al. (2021: 14) to criticise the term 'student experience', which they argue has "none of the rigour or precision that should characterise carefully considered concepts in Sociology." Moreover, Potschulat et al. (2021: 5) argue that the "fuzziness" of the term 'student experience' makes it "ill equipped as a sociological concept" and "deployment of the category 'student experience' hides more than it reveals, when the task of critical social science should be to reveal what is hidden." Therefore, Potschulat et al. (2021: 16) argue that "it may be more useful to eschew use of the term as a proxy altogether (or, if using, to subject to a high threshold of definition and enquiry)."

However, in addition to their reservations about the term 'student experience', Potschulat et al. (2021:14) acknowledged that "deployment of the term 'student experience' has a useful shorthand affordance in 'lay accounts', as it simplifies a complex and variant set of social and spatial practices between students and others." Some benefits of using the term 'student experience' were demonstrated by the fact that it "proved useful to students seeking to describe […] the amorphous and fragmented nature of contemporary studenthood" (Potschulat et al. 2021:14). Therefore, Potschulat et al. (2021:14) concluded that the term 'student experience' can be used as an "effective etcetera principle" that is purposefully imprecise.

1.2.1 Efforts to conceptualise ‘student experience’ more precisely.

To establish more conceptual precision, Jones (2018: 1041) proposed a conceptual framework predicated on the assumption that student experience involves “a complex series of interactions between a student and the various components of their environment which can, depending on the nature of the interaction, result in student learning.” Importantly, Jones (2018) also suggested that a model of student experience is needed that is not restricted to the context of academic learning, as this would limit our ability to account for wider aspects of student life which also contribute to student experience, such as friendships groups and extra-curricular activities. Hence, inspired by Bronfenbrenner’s bioecological model of human development, Jones’s (2018: 1042) model of undergraduate student experience highlights the importance of *interaction* between the student and their environment, and it moves away from depicting students as passive consumers. This model of student experience enables Jones (2018: 1042) to support “a conception of the undergraduate experience based around the student (and their individual circumstances), the factors that define the student’s environment and the processes by which they interact with that environment.”

Jones (2018: 1049) classified the influences shaping the student’s environment into “seven microsystems that reflect the student journey through undergraduate life.” The seven microsystems – or *meaningful sets of influences on undergraduate student experience* – are listed below in Figure 1:

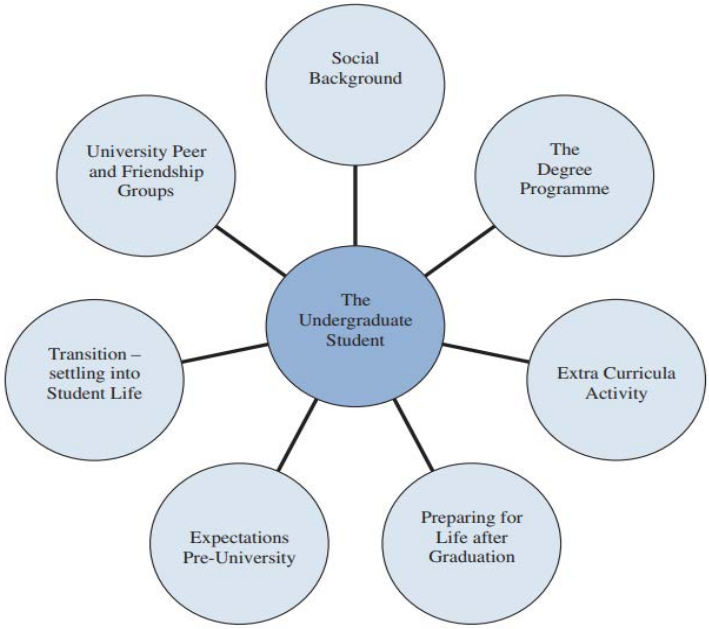


Figure 1. The undergraduate experience as interaction with influential microsystems [From Jones, 2018: 1047]

Jones (2018: 1049) argues that student experiences are shaped by "the individual's pattern of interaction with the seven microsystems", which shape individual student experiences in different ways and to different extents. Jones (2018: 1041) argues that the best way to understand these differences is through the concepts of *engagement* and *alienation*. More specifically, "influences are seen to shape students' experiences when students actively interact with them, thereby contributing to learning and personal development. In contrast, where students feel alienated, interaction is limited and passive, restricting the level of learning" (Jones, 2018: 1041). In other words, the more a student feels alienated from a microsystem, the less they will engage with it and the less it will influence their student experience, and vice versa.

As for what mediates the extent to which a student is engaged with or alienated from each microsystem, "it is the individual circumstances and pre-dispositions of the student that determines the extent to which they engage with or feel alienated by their experiences" (Jones, 2018: 1049). However, further research is needed to understand "the processes through which a student engages with or feels alienated from a microsystem and the corresponding way in which that microsystem waxes or wanes in influence" (Jones, 2018: 1051). This means that more research is needed to analyse the factors that determine the pre-dispositions of students, which shape their interactions with each microcosm and, ultimately, the quality of their student experiences.

1.2.2 Efforts to research 'student experience' empirically.

Since the time when Jones's (2018) conceptual framework was published, Matus et al. (2021) conducted a systematic literature review to identify definitions of student experience, factors that influence it, and ways to measure it. This revealed a "large quantity and variety of definitions", which led Matus et al. (2021) to conclude that the term student experience still lacks a widely accepted meaning. This could explain the finding that "student experience is usually measured in terms of student satisfaction" or equated with course feedback (Matus et al. 2021: 12), which is problematic according to Jones's (2018) model in which student experience encompasses much more than the degree programme.

Although Matus et al. (2021: 14) found that some studies deploying the term 'student experience' are "theoretically poorly developed", existing literature suggests that student experience is influenced by many factors, which Matus et al. (2021) argue can be categorised into three dimensions: *social*, *educational*, and *personal*. The *social* dimension of student experience comprises relational aspects between students and the various actors they interact with throughout their university life. The *educational* dimension includes factors that influence student learning experiences. Finally, the *personal* dimension of student experience includes aspects of the student's life – for example, cultural background and socioeconomic status. Matus et al (2021: 15) concluded that very few publications address student emotions, which is "a problem" given that emotions appear to be an important part of student experiences.

In their quantitative evaluation of first year student experiences of transitions into university, Meehan and Howells (2018) did not explicitly define student experience but explored which aspects of it are important for students. They found that three things consistently mattered to students about their experience: "the academic staff they work with, the nature of their academic study, and feeling like they belong" (Meehan and Howells, 2018: 893). Meehan and Howells conceptualised student experience through an analogy of an orb or plasma lamp, which is presented below in Figure 2. From this perspective, "every touch or action has a reaction" and "the student experience is mediated through a series of 'touches' which shape the early impressions of students with regard to their perceptions about satisfaction" (Meehan and Howells, 2018: 896). This echoes Dewey's (1938: 27-28) remarks about present experiences living on in

subsequent experiences, and it emphasises the importance of experiences that live on “fruitfully and creatively in subsequent experiences.”

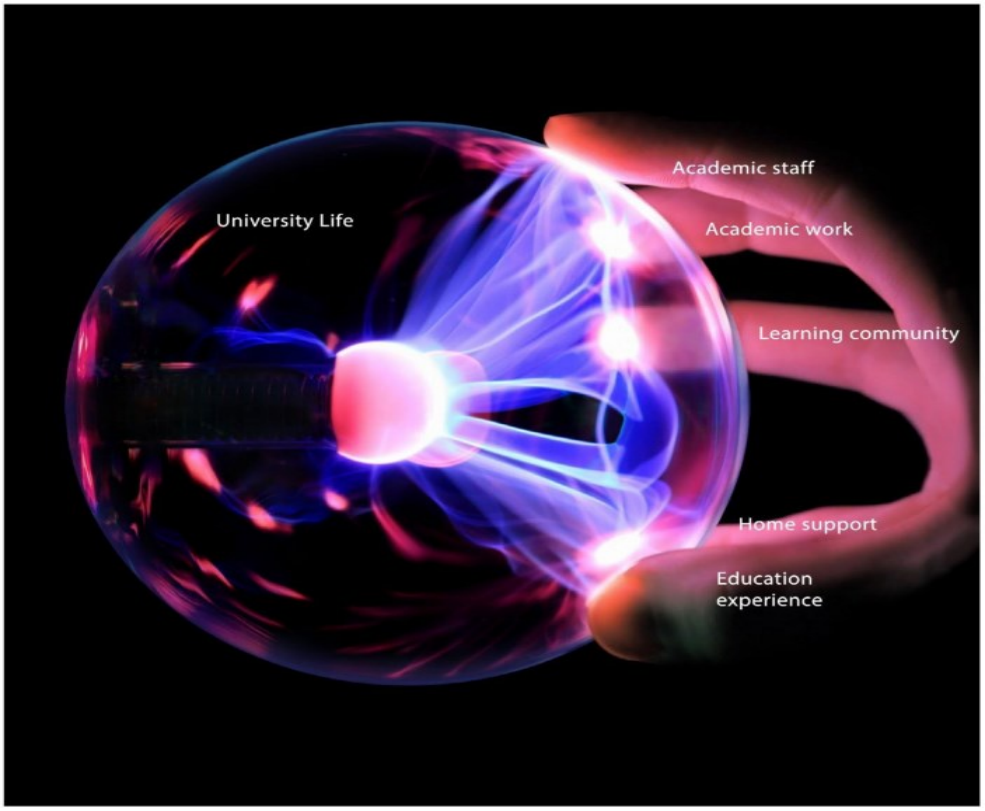


Figure 2. The orb of student experience [Copied from Meehan and Howells, 2018: 896]

In other qualitative research, Bates et al. (2019: 292) used student-driven photo elicitation to better understand “the qualities of a satisfying student experience ‘as lived’ from the perspective of the student”. Their thematic analysis – of the narratives of nine final-year undergraduate psychology students – suggested that “student experience is based on a wide range of factors and is an individual journey depending on issues around the work-life balance, feeling a sense of belonging and the relationships that are developed at university” (Bates et al. 2019: 301). Therefore, Bates et al., (2019: 292) argue that “student satisfaction is best conceptualised as simply being the outcome of complex and multi-dimensional experience.”

Students in Bates et al., (2019: 301) “did not use the language of ‘satisfaction’ or indeed discuss this explicitly as a concept, but instead referred to their experiences”. This suggests that the term ‘experience’ resonates more with students than the term ‘satisfaction’, which is an important point, given that “student experience is usually measured in terms of student satisfaction” (Matus et al., 2021: 12). Bates et al. (2019:

300) concluded that “developing a better understanding of the student experience and student satisfaction would be useful at the institutional level to enable specific strategies to be created and implemented”.

In a related study, Dollinger and Lodge (2019: 1) found that “student-staff partnerships may enhance value in the student experience and that value-in-use [the key premise of which is that “value is a ‘collaborative process of co-creation between parties’”] may be an appropriate lens through which to continue to explore how value is created and measured in the student experience.” Dollinger and Lodge (2019) argue that, “when it comes to measuring value within a student experience, research methods heavily draw upon the notion of ‘satisfaction’ […] Yet, the one-dimensional measure of satisfaction is an inappropriate means to understand the holistic value of the student experience, as it assumes value is created at the end of an experience (e.g., were you satisfied), and it often forces universities to look at their various service offerings independently” (Dollinger and Lodge 2019: 1). The findings of Dollinger and Lodge (2019: 10) raise questions about what it is about people that would make it beneficial, for example, for “a library to allow for students to personalise their experience [or for students to have] the ability to form relationships with staff.” In other words, what is it about people that would make such things conducive to better student experiences?

Heron (2020: 395) does not provide her own definition of student experience; however, she discusses ways in which the term is understood and researched in the HE sector and appears to conceptualise student experience as “the totality of a student’s interaction with the institution’, [which encompasses] all aspects of a journey from the application process right through to life beyond university.” Heron (2020: 395) argues that neither surveys, questionnaires, or student representation meeting minutes “can promote a meaningful feel for the lived and journeyed experience of our students.” As such, Heron (2020: 397) used ‘friendship as method’ – whereby pairs of students undertook recorded, private, and guided conversations with no researcher present – to better understand the realities of everyday student life as described by students. Heron’s (2020) findings suggest that “happiness, confidence and a sense of belonging at university are significantly affected by the role and presence of friends and family.”

The studies (e.g., Meehan and Howells, 2018; Bates et al. 2019; Heron, 2020) that highlight the importance of belonging raise questions about why some students feel

more of a sense of belonging than others. This also suggests that it would be valuable for universities to have tools that can generate data relating to students' sense of belonging.

1.2.3 Analysing student experiences through the Bourdieusain framework.

A review of student experience literature would not be complete without a discussion of studies inspired by the work of Pierre Bourdieu. Although the term 'student experience' is not always specifically used in those studies, Bourdieu's work provides the most common – and arguably the most distinct – conceptual framework through which aspects of student experience have been analysed. From the Bourdieusian perspective, the quality of student experiences is ultimately determined by the extent to which a student's *habitus* and *capitals* align with their educational *field*.

Put simply, the term *habitus* refers to "the embodiment of our lived experiences" (Pheasey, 2020: 77). Bourdieu himself described *habitus* as "systems of durable, transposable dispositions" [that] "generate and organise practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of operations necessary in order to attain them" (Bourdieu, 1990: 53; cited in Brock, 2023: 141).

The term *habitus* is closely related to the notion of *field*, which refers to "a structured system of social positions – occupied by either individuals or institutions – the nature of which defines the situation for their occupants" (Jenkins, 2002: 85; cited in Baker, 2017: 42). A field can be thought of as an environment in which competition between people occurs and where the outcomes vary according to the levels of *capital* that each individual or institution possesses. Some relevant examples of fields are *universities*, where students compete for capital, and the *higher education sector*, where universities compete for capitals.

Bourdieu described four kinds of *capital*, which are summarised by Jones and Bradbury, (2017):

- **Economic** capital refers to "resources such as income, land, and financial assets."
- **Cultural** capital refers to things like "manners, taste, language, knowledge and skills."
- **Social** capital primarily refers to "valued social relations".
- **Symbolic** capital refers to "honour, prestige, and reputation".

According to Jones and Bradbury (2017: 135), “capital is only capital when it can be used in a given field. [Moreover], those who are in possession of the right sort and the right amount of capital will be able to dominate a field – they are its well-positioned agents, groups or institutions. Equally importantly […], capital often begets capital. For instance, an individual who possesses a great deal of cultural or social capital may be able to use these resources to gain more economic capital”.

The terms *habitus, capital,* and *field* are integral to the Bourdieusian framework, which has some merits for analysing aspects of student experiences and related phenomena. For example, Abrahams and Ingram (2013) explored the ways that working-class students who are living at home develop strategies to overcome the internal conflicts that can emerge as they attempt to occupy the somewhat contradictory fields of university-life and working-class homelife. Evidence from similar empirical studies suggests that the habitus of students can be generative in ways that enable students to construct hybrid identities whereby the expectations of university and peers are adapted to and sometimes resisted (Crozier et al., 2019). However, other studies of student habitus highlight the difficulties students can face when trying to fit in at university (Reay et al., 2010), and when trying to reconcile a working-class identity with aspirations to succeed in educational fields (Ingram, 2011). Moreover, Bourdieusian studies show that even when working-class students are successful enough to enter into elite universities, they often experience “discrimination, set-backs, and a degree of social exclusion” because of the incongruence between their habitus and the social conditions of the higher education field they inhabit (Reay et al., 2009; Reay, 2018: 528; Reay, 2021).

Other related Bourdieusian studies show that student choice-making plays a “crucial role” in the reproduction of divisions in higher education, because student choices are “embedded in different kinds of biographies and institutional habituses” (Ball et al., 2002). Bourdieusian studies also reveal that social inequalities in universities are compounded by an emphasis on competition, because middle-class students have advantages over working-class students when it comes to achieving positive educational outcomes and accruing valued forms of capital (Bathmaker et al. 2013). What’s more, because of the marginalisation that working-class students experience in relation to advantageous social activities and networks, the disadvantages for working-class students in university are more likely to extend into the labour market,

because working-class students are more likely to end up in working-class jobs, even when they have a university degree (Reay, 2021).

The Bourdieusian studies above are all relevant to this thesis because they remind us of Dewey's (1938: 27) assertion that "every experience lives on in further experiences." In other words, the Bourdieusian studies illustrate that a student's background and previous experiences will always influence the quality of their subsequent university experiences by shaping the ways that students perceive and interact with the structures, cultures, and agents they encounter at university.

However, as Coles (2020) recognised, *student experiences are not homogenous*, even when students are part of the same socioeconomic group and are relatively similarly positioned in terms of economic, social, and cultural factors. Therefore, "it is not correct to ascribe all the various handicaps of study to one socioeconomic group" (Coles, 2020: 51), even if some groups of students typically experience a given handicap more than other groups of students. This is because, similarly to working-class students (Bovill, 2012), "middle class students might equally have career responsibilities, suffer from homesickness, and choose to work whilst studying" (Coles, 2020: 51). This does not mean that all groups of students (e.g., working-class and middle-class students) encounter the same challenges in equal measure or have access to the same levels of support; however, it highlights the need for analytical frameworks which not only explain differences *between* groups of students who are similarly positioned socially, culturally, and economically, but differences between the individuals *within* such groups. In other words, while it is important to explain why there are group-level differences between working-class and middle-class students when it comes to university experiences, we must also be able to explain why there are individual-level differences in the experiences of working-class students per se, and why there are individual-level differences in the experiences of middle-class students per se.

Explaining differences *within* groups of students whose individual members are relatively similarly positioned can be achieved by better understanding the processes through which students reflect upon their circumstances and make choices which enable them to navigate their way through university. In this respect, the work of Margaret Archer is a helpful addition to the work of Bourdieu, because Archer's work shows that human reflexivity is a more complicated and significant phenomenon than the Bourdieusian framework accounts for. Moreover, because Archer's reflexivity

framework enables us to incorporate a more nuanced framework of reflexivity into the analysis, it enables us to account for the important role that motivations play in shaping student experiences by shaping student reflexivity.

According to Farrugia and Woodman (2015: 630) “Archer maintains that the concept of the habitus prevents any analysis of life projects based on objectives, values and commitments as it erases the reflexivity of the internal conversation and the ‘ultimate concerns’ on which this conversation is founded.” Furthermore, Farrugia and Woodman (2015: 637) suggest that Bourdieu did not offer a theory of reflexivity as such, even though he sometimes suggested that “reflexivity may emerge when a habitus is confronted with unfamiliar social conditions”. Therefore, when it comes to analysing reflexivity, it is reasonable to conclude that Archer’s framework goes beyond Bourdieu’s, because Archer provided a more elaborate and empirically informed framework of reflexivity. A more elaborate and empirically informed framework of reflexivity is needed in student experience research because, as this thesis will show, it can improve our understanding of why the quality of student experiences differ. Furthermore, accounting for student reflexivity will not only improve our explanations of group-level differences in student experiences (e.g., between working-class and middle-class students): it will also improve our explanations of individual-level differences in student experiences (e.g., differences in the experiences of working-class students per se, and differences in the experiences of middle-class students per se).

1.2.4 Why is Archer’s framework of reflexivity necessary and worthwhile? How can it improve our explanations of why student experiences differ?

Archer (2010a) critiqued Bourdieu on the basis that his notion of *habitus* conflates structure and agency and thereby makes it impossible to analyse how structures and agents interact and influence one another. Bourdieu’s conflation is problematic because it fails to acknowledge two important points (Brock, 2023). Firstly, structures and agents have different causal powers and properties. Secondly, the causal powers and properties of structures and agents are activated at different times; this is because structure necessarily pre-dates the agency that transforms it, and structural elaboration necessarily post-dates the agency that causes the elaboration.

This thesis accepts the claims of Archer (2003) that the issue of Bourdieu’s ‘conflationism’ can be overcome via *analytical dualism* which “recognises the interplay

of structure and agency but unpicks them analytically due to different timescales, properties and powers" (Brock, 2023: 151). This thesis also accepts Archer's (2003) argument that reflexivity is the mediating link between structure and agency, because reflexivity is what enables us to consider ourselves in relation to our social circumstances and make conscious decisions about how to act.

Some scholars have argued that Bourdieu's notion of *habitus* and Archer's framework of reflexivity are compatible and can be used in tandem (e.g., Sayer, 2010). For example, in a paper that links human dispositions and decisions to neurological and social factors, Elder-Vass (2007) argues that much of human action is co-determined by the continuous interaction between dispositions and reflexivity. As such, Elder-Vass argues that Archer and Bourdieu can be reconciled, because habitus and reflexivity can be seen as "complementary moments of one and the same process" (Elder-Vass, 2007: 335).

Archer (2010b; 2012) disagreed with the attempts to reconcile her framework of reflexivity with Bourdieu's theory of habitus. However, one of the key points emphasised by scholars who have tried to reconcile habitus and reflexivity is that *previous experiences always influence reflexivity* in ways that agents can be, but are not necessarily, conscious of (Elder-Vass, 2007; Sayer, 2010). Therefore, an analysis of relationships between a person's *previous experiences* and their *student experiences* would necessitate further discussion of Bourdieu's framework, because notions of habitus, capital, and field would be directly relevant to that kind of analysis, and dismissal of those concepts would require sufficient critique of them in this thesis. Nonetheless, the question of whether Archer and Bourdieu can be reconciled is not directly relevant to the arguments in this thesis, because this thesis makes no attempt to analyse how a person's *previous experiences* shape their student experiences or the ways they use reflexivity as a student. Instead, this thesis will begin to develop an understanding of how students' use of reflexivity can shape the quality of their subsequent experiences at university. In other words, this thesis is not about *explaining differences in the ways students use reflexivity*; instead, this thesis is about *identifying differences in the ways students use reflexivity and analysing the potential implications of this for the quality of individual-level student experiences*.

While Bourdieu acknowledged "that reflexivity may emerge when a habitus is confronted with unfamiliar social conditions" (Farrugia and Woodman, 2015), this thesis argues that Archer's framework offers a deeper understanding of reflexivity

because it does not treat reflexivity as a homogeneous process and, instead, it provides empirical evidence of different modes of reflexivity and the characteristics and courses of action that are typically associated with them (see section 2.3 below).

Furthermore, in her work on human reflexivity, Archer (2000: 231) also conceptualised processes of *discernment*, *deliberation*, and *dedication*. These processes are a crucial aspect of reflexivity and represent "three significant moments which can be distinguished in every phase of the [internal] conversation", and through which the self attains "personal identity through its unique pattern of commitments" (Archer, 2000: 241).

Discernment can be understood as an "inconclusive moment of review" that enables us to identify our options without discriminating between them (Archer, 2000: 235). In other words, discernment "can be seen as a logging process" whereby we identify our options as we fallibly perceive them, and register them for further consideration (Archer, 2000: 235).

Deliberation, on the other hand, "is a matter of question and answer, of re-questioning and following up, of amended questions and modified responses." (Archer, 2000: 236). In other words, deliberation is where we consider our options in more detail and evaluate which options are most realistic and which options might be most worthwhile to pursue.

In themselves, discernment and deliberation "represent a very provisional ranking of the concerns" (Archer, 2000: 236-237), with which a person feels they can live. In other words, discernment and deliberation can be seen as processes that enable us to identify our options and reflect on the potential costs and benefits of pursuing each of these options in light of our motivations, values, and priorities.

Finally, *dedication* "represents the emergent moment to which the [discernment and deliberation] have been leading intra-personally." (Archer, 2000: 237). The process of dedication is "a moment of conversational struggle" because both prioritisation and alignment are needed before (temporary) completion of the dialogue can be achieved (Archer, 2000: 238). In other words, the process of discernment, deliberation, and dedication (temporarily) concludes when "internal solidarity is achieved" regarding which options should be prioritised, accommodated or subordinated (Archer, 2000: 240).

By conceptualising reflexivity as a non-homogenous process which encompasses discernment, deliberation, and dedication, Archer reaffirms the importance of human

agency and provides a framework for analysing reflexivity in greater depth. Analysing reflexivity in greater depth is crucial because reflexivity is becoming increasingly imperative in the most economically developed societies (Archer, 2012). More specifically, habits and *habitus* are no longer sufficient for guiding a person's daily choices in the increasingly novel social contexts in which people find themselves, especially if they go to university (Archer, 2012). Therefore, it was justifiable for this thesis to incorporate Archer's framework of reflexivity, regardless of whether Archer's framework of reflexivity is or is not compatible with Bourdieu's theory of *habitus.*

Because Archer's reflexivity framework places more emphasis on reflexivity and enables us to analyse reflexivity in greater depth, it provides opportunities to go further than Bourdieu's framework in explaining differences in the decision-making processes and subsequent experiences of individual university students. More specifically, from a Bourdieusian perspective (e.g., Reay, 2018), the quality of a student's university experiences is determined by the extent to which the student's habitus and capital – which are determined by their previous experiences – align with their educational field. On the other hand, this thesis will go beyond habitus, capital, and field to provide a deeper understanding of the ways that differences in the quality of student experiences can be attributed to student reflexivity. This enables the thesis to identify other internal mechanisms (i.e., *modes* of reflexivity) which can *influence* but do not fully *determine* the quality of a student's university experiences. As such, the framework in this thesis enables us to analyse student decision-making processes and improve our understanding of how student decision-making processes can influence the quality of student experiences.

In summary, although we gain important insights from studies that have analysed aspects of student experience via the Bourdieusian framework (section 2.2.3), Archer's framework of reflexivity provides new ways to explain differences in the experiences of university students. Furthermore, as will be discussed later in this chapter (section 2.3.2), Archer created a quantitative method to indicate modes of reflexivity. This quantitative method can provide quick and categorical indications of mechanisms that this thesis will show to be important aspects of all student experiences; namely, modes of reflexivity.

1.2.5 Where has Archer's reflexivity framework already been applied?

Although Williams (2017) cautions researchers to avoid underestimating the cultural and structural factors that shape people's reflexivity and perceptions of what is possible, Archer's framework has been praised on the basis that "it allows the identification of structural circumstances that cannot be negotiated by agency alone, and how [people] react to these in different ways" (Baker, 2018: 9). In other words, Archer's framework affirms the importance of reflexivity and enables clearer analysis of where and how a person's agency is curtailed by structural and cultural constraints (Baker, 2019).

By applying Archer's framework of reflexivity to the study of student experiences, this thesis contributes to a growing body of research in several areas that has applied Archer's work. For example, scholars have applied Archer's framework to research reflexivity in the contexts of *healthcare inequalities* (Scambler, 2012); *navigation of the Italian employment market* (Tomassini, 2015); and the *life experiences of Sri Lankan women* (Wimalasena, 2017). Carrigan (2014) also applied Archer's framework of reflexivity in his analysis of the relationship between personal change and social change.

More pertinently to this thesis, scholars have applied Archer's reflexivity framework in numerous studies relating to student experiences. Those studies are predominately theoretical and/or qualitative, and they include studies of *widening participation* (Kahn, 2009); *navigation of education and career pathways* (Dyke et al. 2012); *the reflexivity of work-based students* (Bovill, 2012); *student engagement* (Kahn, 2014); *student learning in higher education* (Case, 2015); the *professional development of teachers* (Lord, 2016); *teaching and learning interactions* (Kahn, 2017)*; transnational mobility and transnational social ties of students* (Golob and Makarovic, 2018); the *decision-making processes of further and higher education students* (Baker 2018; Baker 2019); and the *experiences of doctoral candidates* (Sun and Trent, 2022).

1.3 Literature Review Part Two: An Overview of Archer's Reflexivity Framework

Part Two of the literature review will now present an overview of Archer's reflexivity framework and discuss the methodological issues with it that will be addressed in this thesis. Part Two will also explain why it is worthwhile to test for relationships between reflexivity and motivations.

Archer (2003) argues that culture, structure, and agency must be conceptualised as *analytically distinct* if we wish to explain how their relatively autonomous powers and properties causally interact. From this perspective, culture, structure, and agency are mediated via *reflexivity*, which Archer (2007:4) defines as "the regular exercise of the mental ability, shared by all normal people, to consider themselves in relation to their (social) contexts and vice versa." In other words, reflexivity is what enables us to consider our options and evaluate them before making conscious decisions about how to act.

This thesis recognises that human actions do not always require reflexivity and are not always premediated (Elder-Vass, 2007). For example, our hand gestures in conversations might not be premediated; and we can sometimes act in 'knee-jerk' ways, such as when we unthinkingly say something that we later regret, or when returning the ball in a fast-paced game like tennis. We can also implement tasks, like walking to the bathroom, without paying any conscious attention to how we move our legs in order to get there (Elder-Vass, 2007). Nonetheless, reflexivity is understood in this thesis as *the process that makes premediated actions possible*. For example, reflexivity is what enables us to think about what to wear before choosing our clothes for the day, and it enables us to think about what to eat before choosing our food. In other words, reflexivity is prompted whenever choices are consciously perceived, such as when a student must choose a specific course at university and decide which university to apply for.

It is possible to conceptualise reflexivity as a process on one continuum whereby people are either more or less reflexive. In that case, the main empirical question would be how much reflexivity people typically use in a given situation. For example, a person might use a lot of reflexivity when deciding what to eat each day, but not when deciding what to wear. However, Archer's (2003, 2007, 2012) in-depth qualitative research led her to conclude that reflexivity is *not* a uniform process existing on one continuum. Instead, Archer found that reflexivity can occur in different ways, which Archer (2003) conceptualised as 'modes of reflexivity'. There might be more modes of reflexivity than those that Archer identified, but Archer (2003) described four distinct modes of reflexivity, which are summarised in Table 1.

Table 1: Summaries of Modes of Reflexivity [Adapted from Archer, 2007:93]

Communicative reflexivity: Reflexivity of this nature requires completion and confirmation by others before resulting in courses of action.
Autonomous reflexivity: Reflexivity of this nature remains self-contained and leads directly to courses of action.
Meta-reflexivity: Reflexivity of this nature is critically evaluative and oriented towards ethical courses of action.
Fractured reflexivity: Reflexivity of this nature intensifies distress and disorientation and does not lead to purposeful courses of action.

From her in-depth biographical interviews, Archer (2003, 2007, 2012) found that a specific mode of reflexivity can become 'dominant' when contexts are stable enough for people to operate with a default mode. Moreover, Archer (2003; 2007; 2012) also found that each mode of reflexivity is associated with specific patterns of agency. For example, 'communicative reflexives' tend to be primarily oriented towards maintaining their life as it currently is; 'autonomous reflexives' tend to be primarily oriented towards upward social mobility; 'meta reflexives' tend to be primarily oriented towards affecting social change; and 'fractured reflexives' tend to 'see what happens' and be relatively passive. Some of the other characteristics that Archer (2007) found to be associated with each mode are summarised in Table 2.

Table 2: Characteristics of Dominant Practitioners of Each Mode of Reflexivity [Copied from Archer, 2007: 315/316]

Contextual conditions that can give rise to dominant modes of reflexivity…	Contextual continuity: Communicative Reflexivity Contextual discontinuity: Autonomous Reflexivity Contextual incongruity: Meta Reflexivity
Associated stances towards constraints or enablements, hindering or helping social mobility… (opportunities)	Communicative reflexivity = evasive Autonomous reflexivity = strategic Meta reflexivity = subversive
Associated action-orientations…	Communicative reflexivity = self-sacrifice Autonomous reflexivity = self-discipline Meta reflexivity = self-transcendence
Consequences for patterns of mobility…	Communicative reflexivity = social immobility Autonomous reflexivity = upwards mobility Meta reflexivity = lateral mobility
Aggregate macroscopic consequences…	Communicative reflexivity = social reproduction Autonomous reflexivity = social productivity Meta reflexivity = social reorientation
Main institutional impact is…	Communicative reflexivity = family Autonomous reflexivity = market Meta reflexivity = third sector

1.3.1 How did Archer identify different Modes of Reflexivity?

In 2003, Archer began to empirically explore internal conversations, which she argued had received relatively little attention. Archer (2003) recruited 20 participants – 8 of whom she knew well – for in-depth interviews, or what she referred to as 'collaborative conversations'. Archer found that the qualitative data from her interviewees revealed that *reflexivity is not a homogenous process*. Subsequently, three distinct 'modes' of reflexivity were identified.

The modes of reflexivity that Archer identified reflected different *stances* among her interviewees towards the 'enablements' and 'constraints' of society. Enablements and constraints are "causal powers" that have the power to facilitate or impede human action (Archer, 2003: 5-6). For example, institutions, doctrines, and distributions of money can enable and constrain people's agency in different ways.

The distinct stances towards enablements and constraints that Archer (2003) identified were sufficient enough to warrant conceptual differentiation. Each stance "represents an overall pattern of response to the totality of structural powers" (Archer, 2003: 343). In other words, stances are "basic orientations of subjects to society, [and] the 'stance' is ventured as a generative mechanism, at the personal level, with the tendential capacity to regulate relations between the person and her society. In short, they constitute the micro-macro link" (Archer, 2003: 343).

From her interview data, Archer (2003) found that the communicative reflexivity stance was *evasive*; the autonomous reflexivity stance was *strategic*; and the meta reflexivity stance was *subversive*. The evasive stance of Archer's 'communicative reflexives' was evident in their tendency to forfeit opportunities to become 'better off'; for example, by rejecting overtime or employment in order to spend more time with family. On the other hand, the strategic stance of Archer's 'autonomous reflexives' was evident in their proclivity to deploy personal resources in ways that enabled them to embrace opportunities, avoid constraints, and be upwardly socially mobile. Finally, the subversive stance of Archer's 'meta reflexives' was characterized by self-improvement and the pursuit of social transformation; this would often entail downward social mobility for the 'meta reflexives' who had chosen to pursue socially-transformative jobs that were relatively low-paid or voluntary (Archer, 2003).

Archer (2003) suggested that a stance – which results in an *active* agent instead of a passive agent – is *not* something that everyone is able to establish. This was evident from the fact that five of Archer's (2003) interviewees did not fit with any of the three

active modes of reflexivity. However, the commonality among the people who had not established an active mode of reflexivity was that their internal conversations did not appear to help them resolve problems or lead them to purposeful courses of action. Instead, the internal conversations of those people tended to cause them distress and make them feel disoriented. Therefore, Archer conceptualised the nature of these people's internal conversations as *fractured*. Archer's (2003) 'fractured reflexives' appeared to have given up on trying to exercise directional guidance over their own lives and had become passive agents.

1.3.2 The Internal Conversation Indicator (ICONI)

In 2007, Archer investigated whether reflexivity can be measured and whether the modes of reflexivity she identified in her 2003 study were applicable to the general population. To this end, Archer (2007) developed the Internal Conversation Indicator (ICONI), which was intended to be used, at most, as "an economical way of *identifying* consistent practitioners of a dominant mode of reflexivity for interview" (Archer, 2007: 330 original emphasis).

From the start, Archer conceived of the ICONI as "a multi-dimensional questionnaire, and each of the four modes of reflexivity was viewed as being multi-faceted" (Archer, 2007: 330). Archer's aim was "to discover if modes of reflexivity were measurable and, if so, to arrive at the smallest number of questions that discriminated effectively between practitioners of different modes of reflexivity" (Archer, 2007: 330).

Although Archer had discovered that modes of reflexivity could become dominant, "it was never expected that subjects would score highly on one mode and zero on the others" (Archer, 2007: 330). Therefore, Archer began with 24 questions that were "devised from the mental processes and preoccupations attested by their respective practitioners" in Archer (2003). Those 24 questions were used in a pilot study which involved refining and eliminating individual questions. After four administrations of the questionnaire, Archer arrived at a thirteen-item instrument which constituted the final ICONI that was used in the rest of her research (Archer, 2008: 4).

According to Archer (2007: 330), the specific requirements of the ICONI were:

1) It should be able to clearly differentiate between practitioners of the distinct modes of reflexivity [previously] outlined (assuming the probity of the underlying theory).

2) It should be capable of distinguishing ‘strong’ from ‘weak’ practitioners of each mode.
3) As an identification and screening device, it should be quick to administer and be readily understandable to those in all walks of life.
4) It should be free from any form of referential specificity, which would preclude its use in other countries.

As described in Archer (2007), there were multiple stages before the ICONI was complete. For readers that are interested, those stages are summarised in Appendix 1. After following those procedures, a 13-item ICONI was arrived at which accounted for 46.8% of the variance on factor analysis. According to Archer (2008: 4), this compared respectably with directly comparable research instruments employed in social psychology, and the factor loadings “appear[ed] to meet the standards found acceptable for the use of research instruments in social psychology” (Archer, 2007: 334).

Although Archer (2008: 2) went on to suggest that the ICONI was capable of “assigning all subjects unambiguously to a dominant mode of reflexivity”, she made it clear from the outset that the “ICONI was never meant to stand alone [in contrast to sociopsychological devices which are “employed as finished products” that treat reflexivity as a “homogenous practice”] (Archer, 2003: 329). In other words, Archer did not intend for the ICONI to be some sort of self-help inventory, and in an email to Meriton (2016: 21) in June 2015, Archer said that “you will not find ICONI published anywhere. I give it out freely to genuine academic colleagues but dread sitting on a plane one day and finding ‘Discover what type of Reflexive you are’ in an In-Flight magazine!”

Nonetheless, with Archer’s words of caution in mind, this thesis argues that, with sufficient development of the individual measures, ICONI scores alone could serve as a stand-alone indication of how much a person tends to use each mode of reflexivity. This would be valuable data for universities because it would enable identification of the ways that students tend to use reflexivity. Furthermore, with more knowledge about relationships between modes of reflexivity and other phenomena like motivations and experience, universities could use measures of reflexivity to better understand and empower student reflexivity.

1.3.3 Theoretical Critiques of Archer's Reflexivity Framework

A common theoretical critique of Archer's work comes from authors such as Dyke et al. (2012), Lord (2016), and Baker (2018; 2019) who all found that people use different modes of reflexivity in different contexts and are not limited to the use of one mode. Indeed, it is not necessarily the case that people have a 'dominant' mode, given that Dyke (2012) found no evidence to suggest that a single mode of reflexivity becomes 'dominant' as people get older.

Nonetheless, this does not make the ICONI redundant, because the ICONI could be used to measure *reflexive tendencies* (i.e., how frequently a person tends to use each mode) instead of *dominant modes of reflexivity.* Indeed, Lord's (2016) work adds weight to this argument because, after finding it difficult to identify 'dominant' modes of reflexivity, Lord (2016) encouraged researchers to conceptualise modes of reflexivity as *spectrums* that can increase and decrease depending on the domain.

While Archer has never argued that people use a single mode exclusively, Meriton (2016) argued that the presentation of her case studies gives the impression that Archer assigned participants to one mode and excluded a discussion of people's ability to use different modes in different contexts. Nonetheless, it can be argued that Archer presented her case studies in this way so that they would serve as an 'ideal type' of each mode (see Weber, 1949; and Sung Ho, 2022: Online), which is how Archer's case studies were interpreted in the development of this thesis.

1.3.4 Methodological Critiques of Archer's Reflexivity Framework

Meriton (2016: 110) stated that "although Archer went to considerable lengths in her biographical studies to establish the face validity of the measure, the [internal] reliabilities of the measures of the ICONI [were] yet to be established." In other words, it was unknown whether the individual measures for each mode of reflexivity correlated with one another consistently enough. If the individual measures for each mode did correlate consistently enough (i.e., were internally reliable), we would expect to find that respondents scoring highly for an individual measure would tend to score consistently highly across all individual measures for the corresponding mode.

In response to this gap in knowledge, Meriton (2016) subjected Archer's ICONI to an Exploratory Factor Analysis. Meriton's (2016: 114) results revealed that the autonomous reflexivity measures that were supposed to load onto a common factor persistently loaded onto different factors, which provided no basis for the interpretation

autonomous reflexivity measures as valid measures of autonomous reflexivity. Hence, Meriton chose not to use Archer's ICONI autonomous reflexivity measures in his study.

After the ICONI measures for autonomous reflexivity were removed from his analysis, Meriton (2016: 115) ran another factor analysis which requested the extraction of three components. The results revealed that all individual measures of communicative, meta, and fractured reflexivity that were expected to load onto a common component did indeed load onto a common component. This provided evidence that Archer's ICONI measures for communicative, meta, and fractured reflexivity are sufficiently valid. However, further analysis from Meriton revealed internal reliability issues with the measures for communicative and meta reflexivity.

More specifically, the Cronbach alpha score for the communicative reflexivity measures was only 0.45, which Meriton (2016: 117) argued was "too low to force its inclusion". Moreover, the Cronbach alpha score for the meta reflexivity measures was only 0.62, which was below the desired 0.70 mark and is unacceptable according to according to Meyers et al. (2016: 443). Only the measures for Fractured achieved an internal reliability score above the acceptable threshold 0.81.

Therefore, although the ICONI measures for Fractured reflexivity achieved an acceptable internal reliability score of 0.81, Meriton's (2016: 187) findings led him to conclude that "some of the instruments used by Archer do not appear to possess the psychometric properties required to be used in the way they have been in her research." In other words, Meriton's (2016) findings suggest that, with the exception of fractured reflexivity, Archer's ICONI measures of autonomous reflexivity do not appear to measure their corresponding constructs validly enough, and the ICONI measures for communicative and meta reflexivity do not appear to measure their corresponding constructs reliably enough.

Therefore, more work was needed in this thesis to develop valid and internally reliable measures of communicative, autonomous, and meta reflexivity. Moreover, although there is an increasing amount of (predominately qualitative) literature that has applied Archer's framework of reflexivity in empirical research, Meriton's (2016) findings raised questions about the methodological foundations upon which Archer's modes of reflexivity are predicated upon. This thesis will begin to address these issues because the issues mean that researchers are currently unable to indicate reflexivity via quantitative methods and, therefore, at scale. This means that researchers cannot test for relationships between modes of reflexivity and other constructs at scale.

Furthermore, Meriton's (2016) findings effectively mean that researchers do not have a validated set of characteristics for each mode of reflexivity that can serve as a template for the valid and reliable interpretation of interview data.

1.3.5 Extending the scope of Archer's Reflexivity Framework via Self-Determination Theory

Evidence from Self-Determination Theory (SDT) suggests that motivations influence the quality of human experiences (Ryan and Deci, 2018). For example, intrinsic motivation is associated with enhanced learning, performance, creativity, optimal development, and psychological wellness (Di Domenico and Ryan, 2017). Students who are intrinsically motivated are more likely to find inherent satisfactions and joys from being at university that are not dependent on external incentives or external pressure (Ryan and Deci, 2020: 2). Moreover, students with higher levels of intrinsic motivation are more likely to be active and engaged learners who not only enjoy better learning outcomes and experience, but greater psychological and physical health (Froiland and Worrell, 2016; Ryan and Deci, 2018: 475).

In other words, the reasons for our actions – among other things – influence our experiences. If a person does something because they wholeheartedly want to, they will generally enjoy the experience more. Conversely, the less a person wants to do something, the less likely they are to enjoy it. Therefore, this thesis argues that the analysis of student experiences should account for student motivations. However, the frameworks of Bourdieu and Archer do not provide this level of detail and, therefore, fail to account for some important aspects of student experience. Hence, this thesis will integrate Archer's framework of reflexivity with the framework of motivations from Self-Determination Theory. This will facilitate better explanations of relationships between reflexivity and student experiences, because it will make it possible to analyse relationships between reflexivity and motivations.

Although scholars (e.g., Baker, 2019; Froiland and Worrell, 2016) have researched reflexivity and motivations separately in the context of higher education, it appears that researchers have not explored relationships between reflexivity and motivations.

Archer (2012) explored relationships between the reflexivity and *concerns* of university students; however, this thesis argues that, although the dividing line between *concerns* and *motivations* is blurred, concerns and motivations should not be conflated or treated as synonymous. This is primarily because Archer (2012: 22) stated

that “our ultimate concerns are sounding-boards, affecting our (internal) responses to anything we encounter, according to it resonating harmoniously or discordantly with what we care about most.” On the other hand, motivations are what “energise and give direction to behaviour” (Ryan and Deci, 2018: 13).

Therefore, it is reasonable to differentiate concerns and motivations by saying that *concerns* refer to what we care most about (e.g., family and/or employment), whereas *motivations* are what drive our actions in ways that may or may not be aligned with our ultimate concerns (i.e., the things were care most about). For example, someone who has an ultimate concern to preserve their family life might feel extrinsically motivated to go to university for employment-related reasons; in which case, they might choose to commute to university from their current home so that they can maintain their family life whilst pursuing university to enhance their employability. However, another person whose ultimate concern is to preserve their family life might not live close enough to a university to commute; in which case, that person would have to use reflexivity to consciously decide whether they are motivated enough to move away to university or whether they are more motivated to stay put and maintain their family life as it currently is.

Archer (2000) recognised that a person’s ultimate concerns can be categorised into the natural, practical, and social orders of reality in which we all live (Archer, 2000). For example, a person is likely to have concerns about their physical wellbeing in the natural order, their performative achievements in the practical order, and their self-worth in the social order. However, this thesis argues that categorising ultimate concerns into natural, social, and practical orders offers limited analytical utility when it comes to understanding how different kinds of ultimate concerns might influence a person’s psychological wellbeing and the quality of their experiences as a university student. In this respect, Self-Determination Theory research is helpful, because it shows that different kinds of human motivations have different kinds of implications for psychological wellbeing and for the quality of human experiences (Ryan and Deci, 2018). Therefore, this thesis argues that it is necessary to understand different kinds of motivations if we want to understand relationships between a person’s ultimate concerns and the quality of their student experiences. More specifically, to assess how conducive a student’s ultimate concerns are to optimal psychological wellbeing and optimal student experiences, we need an indication of the extent to which the student’s

ultimate concerns have emerged from intrinsic motivations and the extent to which they have emerged from extrinsic motivations.

Hence, this thesis will analyse relationships between motivations and reflexivity. This analysis will develop scholarly understandings of relationships between reflexivity and student experience, given that evidence from SDT suggests that motivations influence the quality of human experiences (see Ryan and Deci, 2018). If there is evidence that motivations and reflexivity are significantly related, then, according to the evidence from SDT which has found relationships between motivations and psychological wellbeing (Ryan and Deci, 2018), it is likely that some modes of reflexivity will be more conducive to positive student experiences than others.

1.4 Literature Review Part Three: An Overview of Self-Determination Theory

Part Three of the literature review presents an overview of Self-Determination Theory (SDT). It will also explain why the insights and measures of human motivation derived from SDT can develop the analysis of reflexivity and thereby improve our understanding of differences in student experiences.

1.4.1 What is Self-Determination Theory?

Self-Determination Theory is an evidence-based theory of human behaviour and personality development (Ryan and Deci, 2018). It provides an explanation of why the quality of human experiences can differ in ways that are not necessarily linked to basic physiological needs. In other words, SDT explains a) why some experiences can feel subjectively positive whereas others can feel subjectively negative; and b) why the same activity can simultaneously feel subjectively positive to one person and subjectively negative to another person (e.g., attending a particular event, reading a particular book, or watching a particular TV show etc.).

From an SDT perspective (Ryan and Deci, 2018), humans are self-regulating organisms who have evolved to be naturally oriented towards exploration, learning, and integration. In other words, we are born with an innate potential to develop and flourish; however, the fulfilment of our innate potential depends on how external factors enable or constrain it.

In this thesis, the term ‘external factors’ can be taken to mean *any phenomena that does not constitute a person’s body but can influence it consciously or unconsciously*.

In this sense, some examples of external factors would be: other people; socialisation; external pressures and rewards; the weather; the temperature of the room; the quality of the air; etc. When external factors support our natural tendencies, we can develop and experience a sense of flourishing. Conversely, when external factors are non-supportive of our natural tendencies, our ability to develop and flourish is constrained, which can lead to boredom, frustration, mental ill-being, and pathological behaviour (Ryan and Deci, 2018).

A primary interest within SDT is human motivation, which is what 'moves' people to action by energizing and giving direction to their behaviour (Ryan and Deci, 2018: 13). Within experimental psychology, motivation has sometimes been treated as a unidimensional phenomenon (Ryan and Deci, 2018). In other words, motivation can be seen as a matter of *extent*, whereby people are either more or less motivated in any given situation (Ryan and Deci, 2018). However, SDT builds on this by conceptualising motivation in terms of extent and *kind*. From this perspective, it is not just a question of *how much* a person is motivated, but *what* they are motivated *by*. In this respect, SDT conceptualises three main kinds of motivation: *intrinsic, extrinsic*, and *amotivation*. These three kinds of motivation will now be described, in turn.

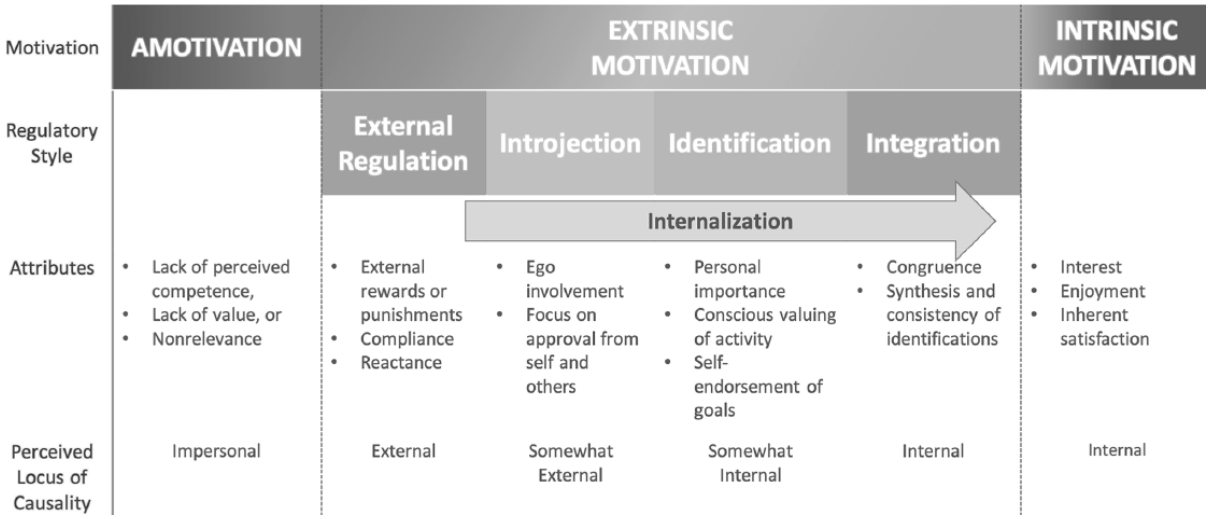
Intrinsic motivation refers to feelings of wholeheartedly wanting to do something, *regardless of* external factors. Listening to music and attending events that interest us are activities that we might feel intrinsically motivated to pursue. When we are intrinsically motivated, a large part of the reward is the lived experience of the activity itself. The claim that intrinsic motivation exists rests on the argument that motivation can emerge spontaneously without external factors being responsible, because we have innate psychological needs (explained below in 2.4.2). Intrinsic motivation can stem from physiological needs alone, but this thesis argues that reference to physiological needs alone is insufficient if we wish to explain why two people can experience the same activity differently. For example, two students who are equally physiologically satiated could experience the same lecture differently, psychologically speaking, with one student finding the lecture interesting and inspiring and the other student finding the same lecture boring and tiring (Ryan and Deci, 2018: 10).

Extrinsic motivation refers to wanting to do something *because of* external factors. Earning money, seeking the approval of others, and attending events that do not interest us are examples of activities we might feel extrinsically motivated to pursue. The rewards and pressures associated with extrinsic motivation depend on external

factors, which may enhance or worsen a person's lived experience of the activity according to the extent to which the motivation has been or can be integrated with their subjective sense of self (see Table 3 below). In short, the more compatible an extrinsic motivation is with a person's values, the more congruent it will feel with their sense of self, the more in control of their actions the person will feel, and the more likely it is that the associated lived experiences will feel subjectively positive to the person.

Amotivation is not, strictly speaking, a type of motivation because it refers to a lack of motivation. In other words, amotivation refers to instances where a person feels no motivation at all to pursue a particular activity.

Table 3: Self Determination Theory Taxonomy of Human Motivation [Copied from Ryan and Deci, 2020: 2]



In summary: intrinsic motivation feels internally originating, extrinsic motivation feels externally originating, and amotivation refers to feeling no motivation at all. Importantly, it is not a question of 'one or the other', because we can be both intrinsically and extrinsically motivated – which is why SDT conceptualises motivation in terms of extent *and* kind. Nonetheless, the distinctions between the different kinds of motivation are important because research has identified links between motivations, psychological wellbeing, and the quality of human experiences (Ryan & Deci, 2018). For example, evidence suggests that intrinsic motivation enhances the quality of human experiences and is associated with enhanced learning, creativity, and optimal development (Di Domenico and Ryan, 2017). On the other hand, research has shown that amotivation is strongly associated with lower levels of student engagement, lower

levels of learning, and lower levels of wellness (Ryan and Deci, 2018: 16; Ryan and Deci, 2020: 3). To explain why this is so – and to explain how intrinsic motivation can exist beyond satiation of physiological needs and without being socialised into people – this thesis will now provide an overview of SDT's understanding of basic *psychological* needs.

1.4.2 What are Basic Psychological Needs?

Our Basic Psychological Needs (BPNs) are similar to our physiological needs for food, water, sleep etc., because they are innate and necessary for our well-being, regardless of whether we value them. In other words, just as neglecting one or more of our physiological needs will sooner or later lead to negative implications for our wellbeing, so will neglect of our BPNs.

There might be more, but SDT has so far been able to describe three BPNs that can be explained theoretically and identified cross-culturally via empirical research (Ryan and Deci, 2018). These are the needs for *autonomy*, *competence* and *relatedness*, each of which are summarised below in Table 4.

Table 4: Summary of Basic Psychological Needs [Adapted from Ryan and Deci, 2018]

Autonomy: This refers to our need to feel in control of our own actions. That is, to feel like we genuinely want to do whatever we do and not like some external pressure is forcing us.
Competence: This refers to our need to feel effective in our actions and derive a sense of mastery from them. Our need for competence is optimally fulfilled when what we are doing or thinking about is neither too easy and therefore dull, nor too complicated and therefore demoralising.
Relatedness: This refers to our need to feel a sense of belonging. That is, to feel meaningfully related to other living beings, and to objects, ideas, or places.

Importantly, although our BPNs are not dependent on external factors for their existence, they depend on external factors for their fulfilment. Hence, there are countless ways in which our BPNs can be supported or constrained. This is why BPNs help to explain why the quality of our subjective lived experiences can differ and why the same activity can simultaneously feel subjectively different to two people, depending on how much the experience supports or constrains their respective BPNs. In other words, a lecture that supports one student's BPNs might not support another student's BPNs. Nonetheless, for a lived experience to feel positive and approximately optimal, a person must feel intrinsic motivation, and the experience must support their

BPNs. Conversely, an experience will feel negative and sub-optimal when a person lacks intrinsic motivation, and when the situation fails to support one or more of their BPNs.

In short, the quality of human experiences depends on more than the extent to which people's basic *physiological* needs are satiated: it also depends on the extent to which their BPNs are supported.

1.4.3 How has Self-Determination Theory been applied in Education Studies?

Ryan and Deci's (2018) extensive literature review reveals that the application of SDT in educational contexts reflects what an understanding of SDT principles would lead one to intuitively expect: namely, empirical testing shows that support of BPN's correlates positively with improved outcomes across the board (e.g., attendance, retention, grades, experiences, psychological wellbeing etc.). Moreover, intrinsic motivation is the only form of motivation that consistently correlates with positive outcomes (Ryan and Deci, 2018). Studies have shown that intrinsic motivation is consistently associated with academic achievement in schools (Taylor et al. 2014), and is positively related to academic performance via classroom engagement (Froiland and Worrell; 2016). In short, people who are intrinsically motivated feel better, learn and grow more, and do better at exams (Ryan and Deci, 2018).

Interestingly, there is evidence that intrinsic motivation tends to decline as students 'progress' through the education system (Ryan and Deci, 2018). This could be because, as people get older, intrinsic motivation is undermined as extrinsic motivations and rewards become more numerous and more influential. Either way, the evidence suggests that educational contexts will likely fail to promote intrinsic motivation if learning is imposed on students and if it undermines their BPNs (Ryan and Deci, 2018).

Notwithstanding the importance of intrinsic motivation, we must remember that well-internalised extrinsic motivation is also crucial for student success. Decades of research consistently demonstrates that the more internalised extrinsic motivation is, the better the student outcomes are likely to be (Ryan and Deci, 2018: 358). The question of *how* extrinsic motivation is internalised raises further questions about reflexivity, which this thesis will begin to address by analysing relationships between motivations and reflexivity.

1.4.4 What are some of the limitations of Self-Determination Theory in the context of Education?

The limitations of SDT's application in education relate to shortcomings that apply more generally to the theory. Firstly, the human capacities to reflect, evaluate, and elaborate are underexplored. Secondly, much of the SDT education literature uses the Academic Motivation Scale (See Table 5 below), which this thesis will develop because of its narrow scope (explained in section 2.4.5 below). Finally, Ryan and Deci (2020: 9) recently argued that "more qualitative work is needed throughout SDT to fill in a more detailed picture of experiences, practices, and motives involved in need supportive [educational contexts]."

When considering the limitations of SDT, it is also worth considering the argument that SDT could be used to justify what this thesis would describe as an 'individualistic utilitarianism' whereby *positive outcomes* are defined as *anything that enables individuals to support their BPN's*.

However, this thesis asserts that SDT has already explained why 'individualistic utilitarianism' is problematic by stating that BPN's can conflict with one another. Therefore, because BPNs can conflict with one another, there is not an infinite number of ways to fulfil all BPN's optimally. For example, unethical and overly-individualistic pursuits can never be optimal for a person's wellbeing because, even if they enable a person to support their sense of autonomy and competence, they will not always optimally support the person's sense of relatedness, particularly if their actions undermine the quality of their personal relationships. Consequently, such a person's wellbeing would be at least sub-optimal.

Additional constraints on the potential individualistic utilitarian tendencies of SDT can be derived from Archer and Donati (2015), whose theories – when applied to SDT – translate into arguments that BPNs should be supported in ways conducive to the production of relational goods and the avoidance of relational evils at the micro, meso, and macro levels. In other words, if we take the perspective of Archer and Donati (2015), genuine flourishing can only ensue via forms of reflexivity that value *ethical* BPN support and are conducive to the flourishing of other people. As such, this thesis argues that BPN-support should not be seen as an *endpoint* of human flourishing but as an *aspect* of human flourishing.

Notwithstanding these limitations, SDT can help bridge the gap between social factors and psychological phenomena by identifying the effects of educational contexts

on students (Carr, 2020). For example, Carr (2018; cited in Carr 2020) identified motivation levels as side effects of education policy and argued that current education policy could be unjust insofar as it dampens student motivation by emphasising performativity and accountability within institutions (Carr, 2020). Moreover, Carr (2020: 336) explained that supporting student autonomy should be a primary ethical purpose of HE because "intrinsic motivation and autonomous forms of motivational regulation are essential [for students to] maintain volition towards educational activities, learn better, and attain psychological wellbeing and personal growth." Hence, it is reasonable to conclude that all other student outcomes are influenced by levels of student motivation. This means that it is worthwhile to include measures of motivations when analysing reflexivity, so that we can understand relationships between motivations and reflexivity.

1.4.5 Existing Measures of Student Motivations

The Academic Motivation Scale (Vallerand et al. 1992) is an attempt to operationalise SDT in the context of education by measuring levels of motivations among students. Table 5 presents the original AMS measures which are ordered according the kind of motivation they are designed to measure.

Table 5: Original Academic Motivation Scale (AMS) Measures

2. Because I experience pleasure and satisfaction while learning new things.	**Intrinsic Motivation to Know**
9. For the pleasure I experience when I discover new things never seen before	
16. For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	
23. Because my studies allow me to continue to learn about many things that interest me.	
6. For the pleasure I experience while surpassing myself in my studies.	**Intrinsic Motivation toward Accomplishment**
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	
20. For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	
27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	
4. For the intense feelings I experience when I am communicating my own ideas to others.	**Intrinsic Motivation to**
11. For the pleasure that I experience when I read interesting authors.	

18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	**Experience Stimulation**
25. For the "high" feeling that I experience while reading about various interesting subjects.	
3. Because I think that a college education will help me better prepare for the career I have chosen.	**Identified Regulation (extrinsic)**
10. Because eventually it will enable me to enter the job market in a field that I like.	
17. Because this will help me make a better choice regarding my career orientation.	
24. Because I believe that a few additional years of education will improve my competence as a worker.	
7. To prove to myself that I am capable of completing my college degree.	**Introjected Regulation (extrinsic)**
14. Because of the fact that when I succeed in college I feel important.	
21. To show myself that I am an intelligent person.	
28. Because I want to show myself that I can succeed in my studies.	
1. Because with only a high-school degree I would not find a high-paying job later on.	**External Regulation (extrinsic)**
8. In order to obtain a more prestigious job later on.	
15. Because I want to have "the good life" later on.	
22. In order to have a better salary later on.	
5. Honestly, I don't know; I really feel that I am wasting my time in school.	**Amotivation**
12. I once had good reasons for going to college; however, now I wonder whether I should continue.	
19. I can't see why I go to college and frankly, I couldn't care less.	
26. I don't know; I can't understand what I am doing in school.	

While the AMS has generally produced good results and is considered statistically robust (Vallerand et al. 1992), Cokley (2015) found issues with the AMS, based on data from a sample of 578 Black college students. More specifically, Cokey (2015: 135) found that there was a “substantial” lack of fit between his AMS data and the seven-, five-, and three-factor models he tested via Confirmatory Factor Analysis. Moreover, the internal consistency of the subscales was “poor” (Cokley, 2015: 135). As such, Cokey (2015: 136) cautioned researchers to be “judicious” about using the existing AMS measures “with racial and ethnic minority participants, especially Black participants.” Cokey also suggested that it would be worthwhile for future research to focus on developing new measures of academic motivation.

Furthermore, although more recent AMS research from Kotera et al. (2019) yielded better results than the Cokley (2015) study, this thesis argues that there remain some good reasons for developing new measures of motivation. More specifically, there are multiple instances in the AMS where two or more statements have the same meaning. For example, *learning* new things (measure 2) and *discovering* new things (measure 9); *concerns about not being able to find a high-paying job with only high school qualification* (measure 1) and *wanting to have a better salary later on* (measure 22).

Therefore, it is justifiable to use a shortened version of the AMS, such as the version Kotera et al. (2019) used after they successfully reduced the AMS from 28 to 14 items (see Table 6).

Table 6: Short Academic Motivation Scale (SAMS) Measures

9. For the pleasure I experience when I discover new things never seen before	**Intrinsic Motivation to Know**
23. Because my studies allow me to continue to learn about many things that interest me.	
13. For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	**Intrinsic Motivation toward Accomplishment**
27. Because college allows me to experience a personal satisfaction in my quest for excellence in my studies.	
11. For the pleasure that I experience when I read interesting authors.	**Intrinsic Motivation to Experience Stimulation**
18. For the pleasure that I experience when I feel completely absorbed by what certain authors have written.	
3. Because I think that a college education will help me better prepare for the career I have chosen.	**Identified Regulation (extrinsic)**
10. Because eventually it will enable me to enter the job market in a field that I like.	
7. To prove to myself that I am capable of completing my college degree.	**Introjected Regulation (extrinsic)**
14. Because of the fact that when I succeed in college I feel important.	
21. To show myself that I am an intelligent person.	
28. Because I want to show myself that I can succeed in my studies.	
8. In order to obtain a more prestigious job later on.	**External Regulation (extrinsic)**
22. In order to have a better salary later on.	

19. I can't see why I go to college and frankly, I couldn't care less.	**Amotivation**
26. I don't know; I can't understand what I am doing in school.	

Although the efforts of Kotera et al. (2019) led to acceptable internal reliability scores for each construct, this thesis argues that the Shortened AMS (SAMS) suffers from the same limitations as the original AMS. Namely, certain pairs of measures in the SAMS are too similar to one another. For example, *for the pleasure of reading interesting authors* (measure 11) and *for the pleasure of feeling completely absorbed by what certain authors have written* (measure 18).

Moreover, some of the motivation measures in both the AMS and SAMS could be reworded to be inclusive of related activities. For example, this thesis argues that the word 'studying' can be used instead of the word 'reading', because 'studying' can reasonably be taken to include 'reading' in addition to other related study activities like attending lectures and watching subject-related videos.

Therefore, this thesis broadened the scope of the AMS by rewording some of its existing measures and by creating some new ones. The aim was to broaden the scope of the measures whilst maintaining the shorter format of the SAMS so that measures of motivations could be included in a single survey alongside measures of reflexivity. This made it possible to analyse relationships between motivations and reflexivity.

1.4.6 Conclusion of Literature Review

The Literature Review chapter has reviewed student experience literature and argued that our explanations of differences in student experiences of university can be improved by analysing relationships between student reflexivity and student motivations. Therefore, with the overarching research aim being to provide new ways to explain differences in student experiences of university, this thesis attempted to achieve its research aim via the following objectives:

1) Create new valid and internally reliable quantitative measures of the four modes of reflexivity identified and described by Archer (2003; 2007; 2012).
2) Create new valid and internally reliable quantitative measures of the three kinds of motivation described by Ryan and Deci (2018).
3) Use the new valid and internally reliable measures to test for statistically significant relationships between reflexivity and motivations.

We will now move onto the Methodology Chapter, which will articulate the methodological underpinnings of the thesis and their implications. The Methodology Chapter will also explain how quantitative empirical research was conducted to address the gaps and issues identified in the Literature Review which warranted the creation of new reflexivity and motivation measures.

Chapter 2: Methodology Chapter

2.1 Introduction to Methodology Chapter

The Literature Review concluded that explanations of differences in student experiences can be improved via analysis of individual-level phenomena such as motivations and reflexivity, especially if we are trying to explain differences in the experiences of students who are relatively similarly positioned from a Bourdieusian perspective, i.e., in terms of habitus, capitals, and field. The Methodology Chapter is divided into two parts. Part One will articulate the methodological underpinnings of this thesis and their implications. Part Two will then explain and justify how quantitative empirical research was conducted to address the gaps and issues identified in the literature review, which warranted the creation of new reflexivity and motivation measures.

2.2 Methodology Chapter Part One: Methodological Underpinnings of this Thesis

Part one of this chapter will articulate the methodological underpinnings of this thesis by providing an overview of critical realism and explaining the implications of critical realism for this thesis.

2.2.1 What is Critical Realism?

This thesis is methodologically underpinned by critical realism, which is "a reflexive philosophical stance concerned with providing a philosophically informed account of science and social science which can in turn inform our empirical investigations" (Archer et al. 2016: Online). The three central tenets of critical realism are *ontological realism, epistemic relativism,* and *judgemental rationality.* Each of the three central tenets of critical realism will now be explained, in turn.

"Ontological realism asserts that much of reality exists and operates independently of [human] awareness or knowledge of it" (Archer et al. 2016: Online). In other words, as ontological realists, critical realists assume the existence "of a single, ontologically objective reality [that is] common to us all" (Porpora, 2015: 67). From this perspective, reality is *relatively* independent of humans because it is assumed that much of reality would continue to exist regardless of human existence or human knowledge.

In addition to assuming that human-*independent* reality exists, critical realists assert that human-*dependent* knowledge about reality is possible. However, the second central tenet of critical realism – *epistemic relativism* – entails the assumptions that human knowledge about reality is "always historical, perspectival, and fallible" and always dependent on "language and concepts" (Archer et al. 2016: Online; Danermark et al. 2019: 21). In other words, all knowledge about reality is constructed by and dependent on a *knower* such as a human being, whose fallible knowledge is always constructed in "a particular place at a particular time with particular norms of knowing that reflect [a] socio-cultural situation" (Porpora, 2015: 672-73). Hence, critical realists accept that "what is considered knowledge […] will vary culturally" (Porpora, 2015: 672-73). This entails "the necessity of methodological pluralism" (Archer et al. 2016: Online), which means that critical realists recognise that knowledge can be constructed via many different methods.

Epistemic relativism does *not*, however, necessitate the assumption that all knowledge constructions are equal in the extent to which they represent and correspond with reality. On the contrary, critical realism asserts that "some constructions are epistemologically superior to others" and humans have an "ability to adjudicate among rival reality constructions" (Porpora, 2015: 73). In other words, humans have an ability to fallibly judge which knowledge constructions are most representative of reality.

Hence, the third central tenet of critical realism is *judgemental rationality* which, as opposed to *judgemental relativism*, "simply suggests that being realists about ontology and relativists about epistemology, we must accordingly assert that there are criteria for judging which accounts about the world are better or worse" (Archer et al. 2016: Online). This means that human knowledge varies in accuracy and researchers can and should make judgements about the extent to which knowledge constructions about reality are proportionate to and consistent with the reasons and empirical evidence for maintaining them.

By accepting the central tenets of critical realism, "it is possible for social science to refine and improve its knowledge about the real world over time, and to make claims about reality which are relatively justified, while still being historical, contingent, and changing" (Archer et al. 2016: Online). In other words, although our knowledge about reality can improve, it is *always* fallible; therefore, even the knowledge we consider to

be our best (i.e., most truthful and representative of reality) is always provisional and should always be subject to scrutiny in light of further evidence and reason.

2.2.2 Why does Critical Realism necessitate a Stratified Ontology?

As stated, critical realism asserts that a) human-independent reality exists and b) human-dependent knowledge about reality is possible. Despite this, critical realism also asserts that reality is "not accessible for immediate observation" (Danermark et al. 2019: 24). However, the assumption that *reality is not immediately observable* does not necessitate the conclusion that *human knowledge about reality is impossible*. This is because of the critical realist assertion that, although reality is *not* immediately observable, it consists of powers and mechanisms that can cause things to happen that *are* observable (Danermark et al. 2019: 24). More specifically, critical realists assert that the causal effects of reality can be observed indirectly, *via* human senses.

If we take the view that human-independent reality exists but that humans can only observe reality indirectly *via* human senses, it is logical to assume a stratified ontology whereby different domains of reality are distinguished. This distinction is made in critical realism, where three ontological domains are conceptualised: the *empirical*, the *actual*, and the *real* (Danermark et al., 2019: 24).

The *empirical* domain "consists of what we experience" (Danermark et al., 2019: 24). In other words, the empirical domain contains the phenomena humans *do* observe via human senses. The empirical domain is distinct from the *actual* domain, which is "where [observable] events happen whether we observe them or not" (Danermark et al. 2019: 24). Importantly, *what is observed or capable of being observed by humans* is not synonymous with *what actually exists* or *what actually happens in reality*. In other words, the empirical domain (observed phenomena) and the actual domain (potentially observable phenomena) are distinct from *the real* domain, which contains "the structures and the mechanisms that contribute to the production of events in the world [i.e., to the emergence of phenomena which can be but are not necessarily observed via human senses]" (Danermark et al. 2019: 24).

It is, therefore, from the *empirical* domain that humans can acquire data. However, because data are always observed *via* human senses and are influenced by concepts and theories, humans never observe the *actual* events that constitute the basis for their data in any direct way, let alone the *real* causal mechanisms that give rise to those events (Danermark et al. 2019: 25). Therefore, it is important for humans to

avoid the epistemic fallacy of "reducing the three domains to a single one" by equating *what is* with *human knowledge about what is* (Danermark et al. 2019: 25). In other words, we should never assume that *our fallible knowledge constructions about reality* ever fully represent *reality itself*. Instead, we should "investigate and identify relationships and non-relationships […] between what we experience, what actually happens, and the underlying mechanisms that produce events in the world" (Danermark et al., 2019: 25). More specifically, Danermark et al. (2019: 26) argue that for usable knowledge to be constructed, "it is essential that we know the mechanisms that produce empirical events", which are rarely observable via human senses.

2.2.3 What are the Implications of Critical Realism for this thesis?

According to Porpora (2016: 63), there are no specifically 'critical realist' research methods because critical realism poses no opposition between qualitative and quantitative methods. Therefore, from a critical realist perspective, provided that methods are always selected in accordance with their appropriateness to the research question and object of study, "there is a valid and important place for all of the methods sociologists have employed" (Porpora, 2016: 63). As such, the use of quantitative methods is fully compatible with critical realism, so long as statistics function only as a form of evidence for an explanation rather than an explanation themselves (Porpora, 2016: 63).

While critical realism is compatible with what are typically considered to be positivist methods, such as statistical analysis (Porpora, 2005: 261), this thesis did not adopt and does not advocate a positivist perspective. That is because, from a positivist perspective, evidence and explanation are "mistakenly" conflated, and statistics are seen as an explanation in themselves (Porpora, 2005: 262). Conversely, from the critical realist perspective adopted in this thesis, statistics are not seen as an explanation in themselves but are instead seen as merely another form of evidence that may or may not support a particular explanation (Porpora, 2005: 262). In other words, whereas statistics are seen as an "explanatory" tool from a positivist perspective, they are only seen as an "evidentiary" tool from a critical realist perspective (Porpora, 2005: 262). That is because critical realists recognise that statistics cannot serve as explanation in themselves but only as a form of evidence that can aid our assessment of an explanation. When used in that way, statistical analysis is "fully compatible with critical realism" (Porpora, 2005: 262).

Quantitative studies involving statistical analysis have been carried out from a critical realist perspective across a range of fields and topics. To take some recent examples, Meriton (2016) drew on critical realist philosophy to analyse relationships between positive psychological resources and an autonomous reflexivity intervention within organisational workplaces. In another context, Bramley and Fitzpatrick (2018) were informed by a critical realist explanatory framework when analysing quantitative data to explain the social distribution of homelessness in the UK. Similarly, Hastings (2021) applied an explicitly critical realist methodology to her quantitative doctoral research project on the causes of family homelessness in Australia.

If we take the view that not everything that happens in the world is observed, and that not all of what happens which *is* observed is *completely* observed, it is logical to posit a stratified ontology such as the one proposed in critical realism. Given the three central tenets of critical realism and the stratified ontology that they necessitate, it is justifiable to analyse constructs such as motivations and reflexivity. Motivations and reflexivity can be conceptualised as causal mechanisms that are not directly observable to researchers but can nonetheless manifest themselves in observable and self-reportable ways by shaping the decision-making processes and experiences of university students. The next part of the methodology will explain how an analysis of that kind was conducted in this thesis.

2.3 Methodology Chapter Part Two: Conducting the Empirical Research

By articulating and explaining the methodological underpinnings of this thesis, Part One of the methodology chapter provided the foundations for Part Two, which will describe and justify the methods that were used to collect, analyse, and interpret the empirical evidence in this thesis. However, before that, it is necessary to explain how disruptions caused by Covid-19 influenced the empirical research and led to a refocusing of the research design.

2.3.1 How did challenges caused by Covid-19 influence this thesis?

When this PhD began on 1st October 2019, the original plan was to begin data collection in September 2020 and complete it in four stages during the 2020-21 academic year. The four stages would have involved:

1) Piloting a survey with new measures of reflexivity, using a sample of first-year undergraduate students.
2) Analysing the results and making necessary improvements to the survey.
3) Re-administering an improved version of the survey using a new sample of first-year undergraduate students.
4) Conducting in-depth interviews with some of the first-year undergraduates who completed the improved version of the survey.

Following that plan to use a mixed methods research design would have mirrored the research design of Archer's (2007 and 2012) original studies which combined quantitative and qualitative methods. The qualitative dimension of the original research design was considered important to this thesis because it would have been an effective way to uncover aspects of reflexivity that quantitative measures are less able to capture, such as examples of the ways students use reflexivity in their daily lives at university. This would have provided a way to triangulate data on student reflexivity; for example, interview data could have been used to test whether a student's survey responses were consistent with the accounts students gave of their reflexivity in interviews. However, the lack of qualitative data meant that this thesis focussed on quantitative data alone when assessing the effectiveness of the new measures of reflexivity (see sections 3.3.6, 3.3.7, 3.3.8, 3.3.9, and 3.3.10 for an explanation and justification of the quantitative methods that were used in this thesis).

At the beginning of the pandemic, my supervisors and I expected that Covid-19 would not cause major disruptions to the work of this thesis because we felt that the effects of the pandemic could be mitigated by conducting the empirical research online instead of in-person. However, online data collection proved extremely difficult and provided evidence in support of Nayak and Naryayan (2019), who stated that response rates to online surveys are extremely poor compared to offline survey responses. This issue was exacerbated by the fact that it was not possible to advertise the research to students during their online lectures and seminars in September and October 2020. This was because the unit leader who had offered to facilitate data collection felt that it was inappropriate to present students with additional work when they were already showing signs of stress due to online learning and assessment amid the pandemic.

Consequently, the first attempt at data collection was in February 2021, where it was immediately evident that students were reluctant to complete an online survey. By 9

April 2021, only 90 students had responded to the survey, despite the fact that a more inclusive sampling approach had been designed whereby hundreds of undergraduate and taught postgraduate students from multiple cohorts and departments were invited to complete the survey. Because at least 300 responses were needed to conduct the appropriate statistical analysis (Field, 2018), it was necessary to wait for the 2021-22 academic year for another opportunity to gather a sufficient number of responses – i.e., 300 or above (Field, 2018).

By October 2022, students had returned to campus for in-person teaching. This made it possible to adopt the original approach of inviting Sociology and Criminology students to complete the survey during their in-person Quantitative Research seminars. As Nayak and Naryayan (2019) had suggested, offline survey methods proved much more effective in this project and generated an additional 246 survey responses within two days. However, stage 1 of the data collection had now taken a full year longer than planned. Therefore, the original research design was revised to mitigate the time losses accrued as a result of the pandemic. This involved refocusing the methodology to exclude what had been intended as stages 2 and 3 in the original plans, meaning that interview data could no longer play a role in the project and quantitative methods became central. This necessitated that the methodology and literature review chapters be reoriented towards a quantitative approach, which is one of the reasons it became important to develop new measures of motivations, so that relationships between student reflexivity and motivations could be analysed. The next two sections will explain how new measures of reflexivity and motivations were created and developed.

2.3.2 How were the new measures of reflexivity in this thesis created and developed?

The literature review explained that despite Archer's (2007) efforts to validate the ICONI, a more recent study found internal reliability issues with the ICONI measures for communicative, autonomous, and meta reflexivity (Meriton, 2016). Hence, this thesis began to address those issues by creating new measures of reflexivity.

The first step involved creating as many new measures as possible for each mode of reflexivity. Four of the new measures were reworded versions of existing ICONI measures, but the rest of the measures were based on what I considered to be the most typical characteristics of dominant practitioners of each mode, based on my

understanding of Archer's (2007; 2011) empirical work and related research (e.g., Baker 2018; 2019).

The next step was to scrutinise and develop those measures until there were seven individual measures for fractured reflexivity and eight individual measures for communicative, autonomous, and meta reflexivity. Seven-to-eight measures per mode of reflexivity were selected because not all measures were expected to stand up to statistical scrutiny, and researchers suggest that at least three individual measures are needed to represent a construct sufficiently and constitute a valid and internally reliable measurement scale (Meyers et al., 2016: 441; Watkins, 2018: 222).

The new measures were then randomly ordered into a document so that the content of each individual measure could be scrutinised by three researchers with expertise in Archer's (2003; 2007; 2012) work. One of the researchers was a Reader in Education, one was a Senior Lecturer in Sociology, and one was a Doctoral Researcher in Sociology. Each researcher received a copy of the content validation document and was asked to indicate which mode of reflexivity they felt each individual measure corresponded to. The three researchers were also invited to leave comments and make suggestions about how the measures could be improved.

There was considerable diversity between the three researchers when it came to which mode of reflexivity they thought each measure corresponded to. More specifically, one researcher matched 28 out of 29 measures to the correct mode, one researcher matched 22 out of 29, and the third researcher matched 15 out of 29. Those responses highlight the possibility that researchers can differ in their understanding of modes of reflexivity and can disagree on which characteristics are most typical of each mode. This provides a justification for the quantitative approach in this thesis which can provide evidence about whether responses to individual measures that are supposed to measure a common construct correlate enough to justify the conclusion that they do indeed measure their intended mode and not another mode or no mode at all.

In summary, the results of the content validation processes indicated that several of the new reflexivity measures could be associated with more than one mode and were, therefore, too generic to be retained. Hence, although 15 of the original new measures were retained after the content validation process, further work was needed to ensure that there were at least 7-8 individual measures for each mode of reflexivity. This involved closely examining the descriptions of each mode of reflexivity in Archer

(2003), the study in which Archer first identified different modes of reflexivity. From that examination of data in Archer (2003), quotes were extracted and collated, and additional new measures were created based on what Archer (2003) had originally described as the characteristics of people who she identified as dominant practitioners of each mode of reflexivity (see Appendix 2 for the collation of quotes).

Initially, this resulted in too many additional measures, but it was possible to reduce the number by grouping the measures for each mode into distinct sub-groups based on the common characteristics which each sub-group appeared to be representative of. This approach made it easier to identify additional groups of measures that were similar enough to characterise one mode of reflexivity, but different enough to be *a unique statement* and not merely *another statement worded differently*.

After these processes were complete, a revised set of measures were sent to two of the researchers for further scrutiny. Shortly afterwards, an online meeting was held between the two researchers and I to discuss the new measures and agree which measures were appropriate and which measures needed further amendments. Some measures were amended during the meeting, and it was agreed that only two measures would need further attention after the meeting.

Once the final two measures were reworded and then approved by the researchers via email, twenty-seven new measures (see table 7) were ready to be randomly ordered into a survey and tested via a sampling approach that is explained below in section 3.3.12.

Table 7: The new measures of reflexivity that were created and used in this thesis.

Communicative Reflexivity
CR1: Before making decisions, I like to check what other people think I should do.
CR2: I find that sharing things with other people is more effective than thinking them through alone.
CR3: I usually trust the judgement of others more than my own.
CR4: I put family and close friends before everything else.
CR5: My preference would be to stay in the place where I grew up, with my family and friends around me.
CR6: I am happy with the way things are in my life.
CR7: I don't feel like I need to change in order to get what I want out of life.
Autonomous Reflexivity
AR1: Being decisive comes easily to me.
AR2: I know myself very well and am confident in my ability to be self-reliant.
AR3: I tend to put work before everything else.

AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too. **AR5:** I have a good idea of where I want to be in the future and how I can get there. **AR6:** Building an independent life for myself is more important to me than staying where my family and close friends are. **AR7:** When it comes to employment, the most important thing is that I have opportunities to progress up the ladder.
Meta Reflexivity
MR1: I reflect on my experiences so that I can try and help other people. **MR2:** I spend a lot of time thinking about other people's emotions and situations from multiple perspectives. **MR3:** I try to live up to ethical ideals, even if it costs me to do so. **MR4:** When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people. **MR5:** I think a lot about how to improve myself and society. **MR6:** When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others **MR7:** My ideas of how things ought to be are always frustratingly different from how things actually are.
Fractured Reflexivity
FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed. **FR2:** Thinking rarely leads me to a purposeful plan of action and often makes things worse. **FR3:** I currently have no idea of what I want to do or who I want to be. **FR4:** I have no idea what to prioritise at the minute. **FR5:** I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out. **FR6:** I block difficulties out of my mind, rather than trying to think them through.

Once the new measures of reflexivity in Table 7 were finalised, existing measures of motivations were developed so that they could be included in the survey alongside the new measures of reflexivity. This made it possible to analyse relationships between reflexivity and motivation, the results of which are presented in section 4.4 of the Findings Chapter.

2.3.3 How were existing measures of motivation developed and used in this thesis?

As was discussed in the literature review in section 2.4.5., the Academic Motivation Survey (AMS) and Short Academic Motivation Survey (SAMS) could have been used in this thesis in their original form, because the measures of intrinsic, extrinsic, and amotivation that they contain have been shown to be sufficiently valid and internally reliable (Vallerand et al., 1992; Kotera et al., 2019). However, this thesis argued in section 2.4.5 that there are multiple instances where two or more individual AMS and

SAMS measures are so similar in meaning that they can reasonably be considered as *the same statement worded differently*. Therefore, it was worth creating some new measures of motivations in this thesis to reduce the number of measures contained in the AMS whilst at the same time broadening the scope of the measures.

It did not require considerable effort to develop the motivation measures. This was because, rather than creating a completely new set of measures for each of the three kinds of motivation – as was done for each mode of reflexivity – it was possible to build on the motivation measures contained in the AMS and SAMS by rewording some of the existing measures and creating some new measures based on Ryan and Deci's (2018) descriptions of intrinsic, extrinsic, and amotivation. This meant that, compared to the processes of creating new reflexivity measures, much less time and effort was required to arrive at the measures of motivation in Table 8, which were subsequently included in a survey used for data collection in this thesis, alongside the new reflexivity measures.

Table 8: The measures of motivations developed and used in this thesis.

Intrinsic Motivation
IM1: I come to university because I genuinely love to learn.
IM2: I come to university because I am fascinated by my subject and I want to spend time studying it.
IM3: I come to university because I really enjoy the challenge.
IM4: I come to university because it gives me opportunities to do things that interest me.
IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it.
IM6: I come to university because I really want to grow as a person.
IM7: I come to university because I really enjoy meeting new people and socialising.
Extrinsic Motivation
EM1: I come to university because it will prepare me for a career that I have in mind.
EM2: I come to university because it will help me to find a job that I enjoy.
EM3: I come to university because I want to show that I am capable of completing a degree.
EM4: I come to university because success here will make me feel much better about myself.
EM5: I come to university so that I can get a well-paid job at the end.
EM6: I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.
EM7: I come to university because it will make me more employable.
Amotivation
AMo1: I come to university because I do not know what else to do.
AMo2: Honestly, I do not know - I feel like I am wasting my time at university.
AMo3: I do not feel interested in university and I wonder whether I should continue.

Following the development of the measures for intrinsic, extrinsic, and amotivation, data collection was now possible so that the validity and internal reliability of the newly developed reflexivity and motivations measures could be assessed.

Although reflexivity and motivations are not directly observable because they are mental phenomena, evidence suggests that reflexivity and motivations are observable in people's actions and can be self-reported. For example, people can report what they feel motivated by (Ryan and Deci, 2018), and people can report the ways they use reflexivity to make decisions (Archer, 2003; 2007; 2011). Hence, the next two sections will explain why it was justifiable to ask the student participants in this research to self-report their reflexivity and motivations via quantitative Likert scales. This will be followed by an explanation and justification of the processes through which the validity and internal reliability of the new measures of reflexivity and motivations was tested.

2.3.4 Quantitative Self-Report

Quantitative self-report methods have always been a frequent target of criticism (Paulhus and Vazire (2007), and there appear to be multiple reasons for this (McDonald, 2008). For example, when self-reporting, respondents might be less concerned with accuracy than with providing socially desirable responses that portray themselves in a consistent and positive light (McDonald, 2008). However, this problem is less likely when responses are fully anonymised (Paulhus and Vazire, 2007), which was the case in this thesis.

Another potential issue with quantitative self-report methods is that situational factors can cause people to give extreme or neutral responses. For example, people are more likely to give extreme or neutral responses if they feel emotionally aroused, do not understand the question, or if they complete the survey in a rush (Paulhus and Vazire, 2007). Therefore, researchers should take steps to avoid these issues and, as with all research methods, researchers should be critical about the accuracy of self-reports and mindful of their limitations (Spector, 2006).

Nonetheless, despite those limitations, there are several advantages to quantitative self-report, and it remains the most popular mode of personality assessment (Paulhus and Vazire, 2007; Robins et al., 2007). One reason for the popularity of quantitative self-report is that the language used in quantitative self-reports is usually relatively easy for respondents to interpret, and the responses are relatively easy for

researchers to interpret (Paulhus and Vazire, 2007). Another notable advantage of quantitative self-reports is that they are one of the more practical ways of doing empirical research, given that they are relatively quick to complete and only require the cooperation of the respondent. Furthermore, self-reports via surveys are also relatively efficient insofar as they can generate data on many variables in short periods of time (Kline, 1993).

Another major advantage to quantitative self-report is that, when the object of research is *people*, it is reasonable to argue that self-report methods are justified because the people who respond are themselves most qualified to fallibly report the contents of their own minds, given that they have the most direct access to their own minds (Paulhus and Vazire, 2007; McDonald, 2008). For this reason, although it will never be perfect or infallible, the information individuals possess about themselves can generally be assumed to be the most legitimate source of information about them, given the individual's proximity to themselves (Spector, 2006; Paulhus and Vazire, 2007).

For example, in a study of employee creativity, Shalley et al. (2009) justified the use of self-report measures on the basis that individual employees themselves are likely to be more aware than anybody else of the subtle things that make them creative in the workplace. In a similar sense, this thesis justifies the use of self-report measures of student motivations and reflexivity on the basis that the individual students who respond are likely to be the most reliable source of knowledge when it comes to their own motivations and reflexivity, because it is they who feel their motivations and it is their own minds that facilitate their reflexivity.

2.3.5 Quantitative Self-Report via Likert Scales

Likert scales enable individuals to express, quickly and relatively easily, how much they agree or disagree with a particular statement (McLeod, 2008). According to Robinson (2018), some researchers argue that Likert scales should contain an even number of points so that respondents must choose whether their response to a survey statement is broadly negative or positive. This approach could reduce the likelihood of unreflective responses whereby respondents simply select the midpoint and provide a neutral response (Weijters et al., 2010). However, an even number of Likert scale points are rarely used in practice (Weijters et al., 2010), and scales with midpoints are more frequently used than those without (Robinson, 2018). Moreover, there is no clear

academic consensus on the number of points a Likert scale should contain (Robinson, 2018).

Therefore, the measures used in this thesis contained Likert scales with seven response points. This was for two main reasons. Firstly, because some respondents might genuinely be neutral on some measures and should, therefore, be able to express this neutrality by selecting the midpoint that a seven-point scale provides. Secondly, the seven-point approach is consistent with the development of the Academic Motivation Scale (AMS) and Internal Conversation Indicator (ICONI), where Likert scales with seven response points were also used (Vallerand et al., 1992; Archer, 2007).

2.3.6 Testing the validity of the new reflexivity and motivation measures via Exploratory Factor Analysis

Factor Analysis (FA) and Principal Components Analysis (PCA) were used in this thesis to test the validity of the measures of reflexivity and the measures of motivation. This is because FA and PCA made it possible to test whether the individual measures for each mode of reflexivity and each kind of motivation were measuring what they were supposed to be measuring, and not measuring something else or nothing at all. This section will explain the similarities and differences between FA and PCA. The section will also justify why FA and PCA were both used in this thesis instead of just one of those methods on its own.

FA and CFA are both exploratory quantitative methods – hence the term 'Exploratory Factor Analysis'. FA and CFA are exploratory because they are not used for hypothesis testing, but for identifying and describing relationships between individual variables in a dataset (Meyers et al. 2016: 404). More specifically, FA and PCA aim to reduce a set of variables to smaller sets of underlying dimensions which are known as 'factors' in FA and 'components' in PCA (Field, 2018: 779). In other words, FA and CFA both identify "clusters of variables" within a dataset that correlate highly with one another but do not correlate highly with other variables outside of that cluster (Field, 2018: 779-780). For example, in this thesis, the individual measures for meta reflexivity should correlate highly with one another, but not with the individual measures for other modes of reflexivity.

FA and PCA are similar in appearance and use, and "many researchers use the term *factor analysis* in a generic (overgeneralised) way to refer to both principal

components analysis and factor analysis" (Meyers et al. 2016: 404). However, there are important statistical and conceptual differences between the two methods. Unfortunately, these differences are difficult for non-statisticians to understand because they are "hidden away in the maths behind the techniques" (Field, 2018: 779). Nonetheless, the differences between FA and PCA are important enough for Field (2018: 780) to argue that, strictly speaking, components should not be interpreted as *unmeasured variables*, whereas factors can be. This is because, in FA, "dimensions, or factors, are estimated from the data and are believed to reflect the constructs that can't be measured directly." In contrast, PCA "transforms the data into a set of linear components; it does not estimate measured variables, it just transforms measured ones" (Field, 2018: 780). Hence, according to Field (2018: 788), some researchers would argue that "when PCA is used, it should not be described as factor analysis".

Another way to explain the differences between FA and PCA is to say that "components are latent variables or composites [that are] descriptive of the information contained in the measured variables [and are said to 'arise' from the measured variables]" (Meyers et al. 2016: 422). Hence, in PCA, the causal flow is from the measured variables to the latent components; in other words, it is assumed that the variables cause the underlying construct (Meyers et al. 2016: 421). On the other hand, in FA, measured variables can be taken as *indicators* of the factors, with the causal flow running from the factor to the measured variables (Meyers et al. 2016: 422). Therefore, in FA, we assume that the underlying construct causes the variables, and not vice versa.

The implications of these differences are that, technically, "only factor analysis can estimate the underlying factors" [e.g., levels of a mode of reflexivity or levels of a kind of motivation] (Field, 2018: 788). In contrast, PCA "is concerned only with establishing which linear components exist within the data and how a particular variable might contribute to a given component [e.g., how strongly an individual measure of reflexivity contributes to its corresponding underlying mode] (Field, 2018: 788).

As for which approach should be used in this thesis to analyse measures of reflexivity and motivations, Watkins (2018: 228) argues that "most methodologists recommend that common factor analysis be employed when the purpose is to identify latent constructs responsible for the variation of measured variables". However, Watkins (2018: 228) also suggests, in reference to Loehlin and Beaujean (2017), that the distinctions may make little difference if there are more than 40 measured variables in

the dataset, which was the case with the dataset used in this thesis. Therefore, given that it was not definitively clear whether FA or PCA would be more appropriate for the variables in this thesis, the data was analysed via both methods so that the results could be compared. This strengthened the rigor of the overall findings of the thesis because it facilitated an assessment of the extent to which the results from the two methods supported or undermined one another.

2.3.7 Interpreting the results of Factor Analysis and Principal Components Analysis

The criteria for interpreting the FA and PCA results in this thesis was broadly the same. This is because Meyers et al. (2016: 422) argue that, despite some noteworthy statistical differences between FA and PCA, "the output and the interpretation of the results of these procedures are virtually the same." Similarly, Field (2018: 788) suggests that there is likely to be little difference between the results generated from PCA and those derived from FA, so both sets of results should be interpreted in similar ways.

The extent to which each individual measure correlated with an underlying factor or component was assessed in this thesis by interpreting the individual factor and component 'loading score' for each individual measure (Watkins, 2018: 231). Loading scores are, effectively, correlation scores which range from -1 to 1. A score of 1 would indicate a perfect positive relationship between the variable and the factor or component; a score of -1 would indicate a perfect negative relationship; and a score of 0 would indicate no relationship. According to Field (2018: 795), some researchers suggest that individual variables must achieve a loading score of below -0.4 or above 0.4 before they can be considered sufficiently related to the component or factor. However, researchers can also opt for a lower criterion of below -0.3 or above 0.3 Field (2018: 795). Hence, in this thesis, loading scores of below -0.3 or above 0.3 were considered acceptable.

When it comes to measuring underlying constructs like reflexivity and motivations, Meyers et al. (2016: 441) and Watkins (2018: 222) suggest that the number of individual measures that are needed to constitute a valid and reliable measurement scale is generally considered to be no fewer than three or four. Therefore, in this thesis, at least three or four individual measures had to achieve a loading score of at least below -0.3 or above 0.3 for the same underlying construct. The main reason for this

was that the information with which to describe or characterise an underlying construct is dependent on the number of distinct individual measures that sufficiently correlate with it. Moreover, a sufficient number of highly-correlated individual measures is necessary before a measurement scale consisting of multiple items can achieve an acceptable level of internal reliability (Meyers et al. 2016: 441).

2.3.8 Testing the Internal Reliability of the new Reflexivity and Motivation Measures

As explained above in section 3.3.7, Factor Analysis and Principal Components Analysis were used in this thesis to test the validity of the new measures of reflexivity and the new measures of motivation. However, it was also necessary to test the internal reliability of any sets of individual measures that appeared to be valid (Field, 2018). This was to ensure that the individual measures of a given construct were not merely measuring what they were supposed to be measuring, but measuring what they were supposed to be measuring *consistently.* In other words, “other things being equal, a person should get the same score on a questionnaire if they complete it at two different points in time” (Field, 2018: 821-822). This also means that two people who are the same or similar in terms of the construct being measured should get the same or similar scores if they complete the same survey. For example, two students who tend to use meta reflexivity a lot should both score highly on the measures of meta reflexivity used in this thesis.

Another way to explain internal reliability is to say that, in statistical terms, “individual items (or sets of items) should produce results consistent with the overall questionnaire” (Field, 2018: 822). This means that, if students who are highly intrinsically motivated complete a survey that reliably measures intrinsic motivation, then their responses to that survey should indicate relatively high levels of intrinsic motivation across all individual measures of intrinsic motivation.

A simple way to test internal reliability is through *split-half reliability*, which is a method that splits questionnaire responses into two randomly-selected sets of items and calculates a score for each participant on both halves (Field, 2018: 822). With this method, if a scale is reliable, “a person’s score on one half of the scale should be the same as (or similar to) their score on the other half. Across several participants, scores from the two halves of the questionnaire should correlate very highly. The correlation

between the two halves is the statistic computed in the split-half method, with large correlations being a sign of reliability" (Field, 2018: 822).

However, despite its simplicity, a limitation of the split-half method is that there are many ways to randomly split a data set, and the reliability scores generated by this method are determined by the way the data are split. Therefore, this thesis used the most common measure of scale reliability, which is Cronbach's alpha (Field, 2018).

The Cronbach's alpha method is "loosely equivalent to creating two sets of items in every possible way and computing the correlation [value] for each split" (Field, 2018: 822). The average of these values is equivalent to the Cronbach's alpha score, which is effectively "an index of internal consistency, quantifying the degree to which test takers respond in a consistent manner to the items in the set" (Meyers et al. 2016: 443). Cronbach's alpha scores range from 0 to 1, and the higher the score, the greater the internal reliability of the scale (Field, 2018).

The survey used in this thesis contained seven different scales – i.e., one set of measures for each of the four modes of reflexivity and one set of measures for each of the three kinds of motivation. Therefore, Cronbach's alpha scores were calculated for each of the seven individual scales, and not for the survey as a whole (Field, 2018: 823).

Field (2018: 823) suggests that a Cronbach's alpha score of 0.7-0.8 is an acceptable threshold for assuming the internal reliability of a scale, and Meyers et al. (2016: 443), suggest that 0.7 is generally considered an acceptable threshold by most researchers. Therefore, a Cronbach's alpha score of 0.7 or above was considered an acceptable level of internal reliability for the measurement scales in this thesis.

2.3.9 Overview of Confirmatory Factor Analysis

Following the Exploratory Factor Analysis – which included FA, PCA, and internal reliability tests – this thesis used Confirmatory Factor Analysis to further scrutinise the relationships identified in the FA and PCA, and to thereby strengthen the empirical underpinnings of the conclusions in this thesis. This section will explain what Confirmatory Factor Analysis is, how it differs from FA and PCA, and how it was used in this thesis.

FA and PCA are both inductive approaches whereby researchers adopt a 'bottom-up' strategy and base their conclusions on specific observations (Meyers et al., 2016: 506). In other words, the conclusions reached via FA and PCA are based on whatever

individual measured variables the analysis reveals to be most strongly associated with each factor or component. For example, in this thesis, it was expected that each set of individual measures for each mode of reflexivity would correlate strongly with (i.e., 'load onto') a different factor or component; this would suggest that each set of individual measures are measuring the common underlying construct that they were designed to measure, and not something else or nothing at all.

In contrast to FA and PCA, Confirmatory Factor Analysis (CFA) is a deductive approach where "researchers employ a top-down strategy by predicting an outcome from a theoretical framework" (Meyers et al. 2016: 506). As such, "confirmatory factor analysis can be conceived, very roughly, as factor analysis or principal component analysis turned upside down" (Meyers et al., 2016: 494). The differences can be conceptualised in those ways because, in FA and PCA, researchers start with a set of variables and allow the underlying dimensional structure of those variables to emerge from the analysis (Meyers et al, 2016). For example, in the FA and PCA in this thesis, every individual measure of reflexivity was analysed together as a single set, and the FA and PCA revealed which individual measures 'clustered together' most strongly. Roughly speaking, the number of clusters generated by the analysis will equate to the number of underlying factors or components accounted for in the dataset, with the individual measures that constitute each cluster correlating highly with the corresponding factor or component. For example, given that this thesis is trying to measure four different modes of reflexivity, it was expected that the FA and PCA would reveal four factors and components – one for each mode of reflexivity.

Conversely, in CFA, researchers "specify in advance of the statistical analysis which variables are hypothesised to be associated with which factors" (Meyers et al. 2016: 493). This is done by representing hypothesised relationships – which can be derived from FA and PCA – in a model which is then tested to determine how well the pre-specified model 'fits' with a given dataset. For example, in this thesis, the 'hypothesised' model for the CFA was derived from the FA and PCA results. The CFA was then used to test the extent to which "relationships between the variables in [the] hypothesised model resemble the relationships between the variables in the observed dataset" (Meyers et al. 2016: 507).

While it can be assumed that researchers "always have some ideas in advance about the underlying structure of the variables that they have placed together in exploratory factor analysis" (Meyers et al. 2016: 506), the differences between FA/PCA

and CFA can be summarised by saying that FA/PCA are processes of theory-generating, whereas CFA is a process of theory-testing. Therefore, although there were prior expectations in this thesis about what the FA and PCA would reveal, it was worthwhile to conduct CFA in this thesis because it provided a way to test the robustness of the FA and PCA results and thereby strengthen the empirical underpinnings of the conclusions in this thesis.

2.3.10 Interpreting the results of Confirmatory Factor Analysis

The interpretation of CFA results is effectively a matter of assessing the degree of 'fit' between the hypothesised model and the observed dataset. If the sample in this thesis had been between 75-200, the chi square statistic could have been an adequate measure of fit (Meyers et al. 2016: 516). However, the chi square statistic is "very sensitive to sample size" because it can detect small discrepancies between observed and predicted covariances (Meyers et al. 2016: 516). This can lead to a good-fitting model being rejected "because of trivial but statistically significant differences between the observed and predicted values" (Meyers et al. 2016: 516). Therefore, this thesis heeded the advice of other researchers and did not make sole use of the chi square index when judging the overall fit between the CFA model and the observed dataset (Meyers et al. 2016). Instead, this thesis compensated for the possibility of *large sample sizes causing statistically significant chi square scores* by dividing the chi square value by the degrees of freedom in the analysis (Meyers et al., 2016: 518). Following this calculation, a resulting value of 2 or less was considered a good fit, whereas a value between 2 and 5 was considered acceptable (Meyers et al. 2016: 518).

Because of the limitations with the chi square statistic, at least 24 other indexes have been developed by researchers to quantify the degree of fit between a hypothesised model and a dataset (Meyers et al. 2016: 516). However, there appears to be "no general agreement on which measures are preferred" and "different research studies report different fit indexes" (Meyers et al. 2016: 516). Furthermore, despite the abundance of fit indexes, there is a "lack of consensus" on how researchers should categorise or organise them (Meyers et al. 2016: 516). For these reasons, this thesis followed the approach of Meyers et al. (2016: 517), who built on what they found to be the most-cited classification scheme and created a table of model fit indexes which contains indications of which numerical values of these indexes can be considered

acceptable levels of fit. Those fit indexes were used in this thesis and are presented in Table 9.

Table 9: Fit Indexes and Target Values for Good 'Fit' between a Hypothesised Model and an Observed Dataset [Borrowed from Meyers et al., (2016: 517)

Absolute Indexes			Relative Indexes			Parsimonious Indexes			Model Comparison Indexes		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$		CFI	≥ .95*		AGFI	≥ .90		AIC	Lower	
X^2/df	≤ 2.00**		NFI	≥ .95*		PGFI	> .50		BCC	Lower	
GFI	≥ .95*		IFI	≥ .95*		PNFI	> .50		BIC	Lower	
RMSR	≤ .05		TLI	≥ .95*					ECVI	Lower	
SRMSR	≤ .10										
RMSEA	≤ .06***										

Note. These individual "target values" should be treated as "close to" (brown, 2015; Hu & Bentler, 1999a) under some conditions (e.g., when used in combination with other fit indexes).

X^2 = Chi square test; X^2/df = Chi square divided by degrees of freedom test; GFI = Goodness of Fit Index; RMSR = Root Mean Square Residual; SRMSR = Standardized Root Mean Square Residual; RMSEA = Root Mean Square Error Approximation; CFI = Comparative Fit Index; NFI = Normed Fit Index; IFI = Incremental Fit Index; TLI = Tucker Lewis Index; AGFI = Adjusted Goodness of Fit Index; AIC = Akaike Information Criterion; BCC = Brown-Cudeck Criterion; BIC = Bayes or Bayesian Information Criterion; ECVI = Expected Cross Validation Index. Lower = Lower values indicate better fitting models.

* Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

In accordance with the advice of Meyers et al., (2016: 517), this thesis treated the specified values in Table 9 as "close to" rather than exact. This was because the correct interpretation of each value can depend on other factors such as whether a given fit index is used in combination with other fit indexes, which may yield better decisions (Meyers et al. 2016: 517).

While acknowledging disagreement among researchers about which fit indexes should be reported, Meyers et al. (2016: 519) suggest that researchers do not need to be concerned with a statistically significant chi square value, so long as other fit indexes suggest an adequate or good model fit. Hence, while the chi square value was considered in this thesis, this thesis followed the advice of Meyers et al., (2016) and focused more on other fit indexes such as the RMSEA, the GFI, the CFI, the IFI, and the TLI.

In addition to the model fit indexes in Table 9, this thesis also considered the pattern coefficients of each individual measure when assessing the overall model fit. In CFA, 'pattern coefficients' can be conceptualised as similar to 'loading scores' in FA and PCA, because they are numerical values that, if they are statistically significant,

represent the degree to which a measured variable correlates with an underlying construct (Myers et al. 2016: 520).

Therefore, in this thesis, if the model fit indexes in the CFA suggested that an acceptable fit between the hypothesised model and observed data had been obtained, the next step was to determine if the pattern coefficients were statistically significant at a level of 0.05 or below. If a pattern coefficient is statistically significant at a level of 0.05 or below, this can be taken as evidence that the measured variable is significantly correlated with the latent construct (Myers et al. 2016: 520). At this point, the pattern coefficient of the individual measure can be interpreted, and an individual measure can be taken as an effective measure of the corresponding underlying construct if it achieves a pattern coefficient value of greater than 0.3 (Meyers et al. 2016: 520).

2.3.11 Testing for Relationships between Reflexivity and Motivations

As explained in section 2.3.5, one of the reasons for creating new quantitative measures of reflexivity in this thesis was so that relationships between reflexivity and motivations could be statistically analysed. This was achieved in this thesis by aggregating participant scores for individual measures of each construct and then dividing that number by the number of individual measures for the construct. This resulted in each participant having an average score for each construct, which could then be used to test for relationships between constructs by identifying the strength of correlation between average scores for each construct.

Correlation values range from -1 to 1. A value of 1 indicates a perfect positive relationship; a value of -1 indicates a perfect negative relationship; and a value of 0 indicates no relationship. In this thesis, relationships between reflexivity and motivation constructs were considered statistically significant if the correlation value (ranging from -1 to 1) was statistically significant at the 0.05 level – i.e., if the *p* value was less than 0.05 (Field, 2016: 340). The *p* value indicates the probability that the result is an anomaly, with a *p* value below 0.05 indicating a less than 5% chance that the result is anomalous.

2.3.12 Sampling

Manchester Metropolitan University alone was adequate to meet the sampling requirements of this thesis. This was because the objectives of this thesis were to create new quantitative measures that could be used to analyse relationships between

student reflexivity and student motivations. Hence, this thesis did not aim to and will not generalize the empirical findings to ‘students in general’ or ‘people in general’.

The sample size for the data collection in this thesis was informed by Field (2018: 797), who suggested that a sample size of 300 or more participants would be sufficient for the kinds of statistical techniques that were used to analyse the data – namely, factor analysis, principal components analysis, and confirmatory factor analysis. Moreover, the adequacy of the sample in this thesis was assessed via the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO statistic ranges from 0 to 1, and the closer the statistic is to 1 the more the sample size can be considered adequate for the analysis. Kaiser and Rice (1974; cited in Field, 2018: 798) state that KMO values below 0.7 are mediocre, and anything below 0.5 is unacceptable. The KMO statistics for the reflexivity and motivation measures are presented in the Findings Chapter (sections 4.2.2. and 4.3.2).

The original plan was for the sample to contain first year undergraduate students only, because these students would be at the early stages of their university journeys and, therefore, would be most able to recall their reasons for going to university and the key factors that had, so far, influenced their decisions. However, the disruptions and restrictions caused by Covid-19 (explained in Section 3.3.1) made it difficult to obtain the necessary amount of survey responses from first year undergraduate students alone. Therefore, the sampling strategy was redesigned to include all undergraduate and postgraduate taught students. This made it possible to gather enough data for the quantitative analyses.

2.3.13 Data Collection

The data collection for this thesis took place in two stages, each of which will now be summarised.

Stage 1

Between March 2020 and September 2021, there was no option to collect data in person because of Covid-19 restrictions. Hence, the first attempt at data collection took place completely online. Some advantages to online data collection were that participants might have felt less pressure to participate in the research; and, if they chose to participate, they were able to complete the survey in the privacy of wherever they happened to be. Another advantage was that all survey responses were

completed in an online format, which meant that responses could be downloaded directly to the analysis software (SPSS) without the risk of human error that is possible when manually entering the responses from a physical survey.

However, in the case of this thesis, the disadvantages of online research outweighed the advantages and provided evidence to corroborate Nayak and Naryayan (2019), who stated that response rates to online surveys are extremely poor compared to offline survey responses. Instead of advertising the research on campus in face-to-face lectures containing around 280 students, it was necessary to advertise online to significantly smaller classes of students, all of whom had their cameras turned off. Ultimately, only 89 of around 400 students chose to respond to the online survey. Whether this was due to Covid-related stress or the ease at which students could simply 'leave the online class' without completing the survey, it meant that the initial attempts at data collection generated an insufficient number of responses for the appropriate statistical analysis. As such, it was necessary to continue data collection during the following academic year – by which point it was expected that students would be back on campus and could be invited to complete a physical copy of the survey during in-person classes.

Stage 2

After the low response rate in stage 1, stage 2 of data collection began in October 2021. This involved inviting Level 5 Sociology and Criminology students to complete a physical copy of the survey during seminars. Because these seminars were for a quantitative methods unit, it was agreed that students could benefit from completing the survey as an in-class learning activity. As such, there was an allotted time for students to complete the survey during the seminars.

As the researcher, I attended each seminar to introduce myself, explain the research, and invite students to complete the survey. I encouraged students to participate and I explained the benefits, but I also made it clear that participation was completely voluntary, and that each student could freely choose not to complete the survey if they did not wish to.

Stage 2 of data collection was much more successful than stage 1 and it generated a further 266 survey responses. The 266 responses were added to the 89 responses from the previous year so that there were over 300 responses in total and the requirements were met for the appropriate statistical analysis.

2.3.14 Ethical Considerations

The research in this thesis followed Manchester Metropolitan University's ethical procedures and full ethical approval for the project was granted via the university's EthOS system. At the beginning of both the online (stage 1) and in-person (stage 2) phases of data collection, the survey was distributed at the beginning of each lecture, after the project had been explained and students had been informed that participation would be completely voluntary and anonymous. It was hoped that, in addition to protecting the privacy of participants, full anonymity would reduce the risk of socially desirable responses (Paulhus and Vazire, 2007; McDonald, 2008).

The approach to data collection meant that students were arguably less likely to refuse participation in the research because they would be in the classroom whether they chose to complete the survey or not. Nonetheless, students were made aware that participation was completely voluntary and there was no obligation to participate in the research if they did not wish to. That was made clear by explaining to students that they could simply choose not to respond to the survey if they preferred not to, and that the researcher would not be watching and, therefore, would not know which students in the class had (or had not) completed the survey.

The informed consent of the students that did participate in the research was assumed by the fact that they had voluntarily decided to complete the survey after being verbally briefed about it.

The survey did not collect any confidential or sensitive information, and data collection and storage processes were fully GDPR-compliant. This meant that data was stored only on password-protected devices which only the researcher had access to.

2.3.15 Conclusion of Methodology Chapter

This chapter has articulated the methodological underpinnings of this thesis and their implications. It has also explained and justified the methods that were used to collect, analyse, and interpret the empirical evidence in this thesis. The next chapter will present the results of the quantitative analyses, which were conducted and interpreted in accordance with the approaches and criteria that were presented in the methodology.

Chapter 3: Findings Chapter

3.1 Overview of Findings Chapter

The Findings Chapter is divided into three parts. Part One presents the Exploratory and Confirmatory Factor Analysis of the reflexivity measures. Part One will address research objective 1 of the thesis, which was to create new valid and internally reliable quantitative measures of the four modes of reflexivity identified and described by Archer (2003; 2007; 2012).

Part Two of the Findings Chapter presents the Exploratory and Confirmatory Factor Analysis of the motivation measures. Part Two will address research objective 2 of the thesis, which was to create new valid and internally reliable quantitative measures of the three kinds of motivation described by Ryan and Deci (2018).

Finally, Part Three of the Findings Chapter presents a summary of the statistical analysis of relationships between the valid and internally reliable measures of reflexivity and motivations. Part Three will address research objective 3 of the thesis, which was to use the new valid and internally reliable measures to test for statistically significant relationships between reflexivity and motivations.

3.2 Findings Chapter Part One: Assessing the Validity and Internal Reliability of the Reflexivity Measures

Part One of the findings chapter presents the exploratory and confirmatory factor analysis results for the new measures of reflexivity. This part will address research objective 1 of the thesis, which was to create new valid and internally reliable quantitative measures of the four modes of reflexivity identified and described by Archer (2003; 2007; 2012).

3.2.1 Exploratory Factor Analysis of Reflexivity Measures

As explained and justified in section 3.3.6 of the Methodology chapter, the Exploratory Factor Analysis in this thesis consisted of Factor Analysis (FA) and Principal Components Analysis (PCA). These exploratory quantitative methods were used to examine patterns in the data and assess the validity of the new measures of reflexivity. Cronbach's Alpha scores were also calculated to test the internal reliability of any clusters of new measures that appeared to be valid. This approach made it possible to identify and consider all clusters of individual measures that:

a) ‘loaded’ onto a mutual factor or component with loading scores above the 0.3 threshold or below -0.3 threshold (Field, 2018: 795); and
b) achieved an internal reliability score of 0.7 or above (Field, 2018: 823; Meyers et al., 2016: 443).

This process ensured that all clusters of measures that could have been valid and internally reliable measures of a meaningful underlying construct were included in the subsequent Confirmatory Factor Analysis (CFA).

3.2.2 Preliminary Analysis of New Reflexivity Measures

Before conducting the FA and PCA for the reflexivity measures, a preliminary analysis was used to screen the data, test assumptions, and assess the adequacy of the sample (Field, 2018: 806). This made it possible to identify and eliminate any reflexivity measures that it would have been inappropriate to include in the FA and PCA. Outputs for the preliminary analysis of the reflexivity measures are presented in Appendix 3.

The first stage of preliminary analysis for the reflexivity measures involved scanning the correlation matrix which contains correlation coefficients for all pairs of individual measures and corresponding significance values. According to Field (2018: 806), "variables with very few correlations above 0.3 might not 'fit' with the pool of items, and variables with correlations greater than 0.9 might be collinear." In other words, researchers can assume that individual measures with none or few correlations above 0.3 are *too different* to other measures to be measuring a common underlying construct, whereas measures which correlate above 0.9 with one or more other measures are *too similar* to one or more individual measures and are, therefore, redundant.

The preliminary analysis of the reflexivity measures revealed no correlations above 0.9, which suggested that no variables were collinear (Field, 2018: 806). However, the following measures did not correlate at 0.3 or above with any other measures and were therefore removed from the analysis because they were not deemed similar enough to any other individual measure to be representative of a common underlying construct:

- FR6: I block difficulties out of my mind, rather than trying to think them through.
- CR2: I find that sharing things with other people is more effective than thinking them through alone.

- CR5: My preference would be to stay in the place where I grew up, with my family and friends around me.
- CR7: I don't feel like I need to change in order to get what I want out of life.
- AR3: I tend to put work before everything else.
- AR7: When it comes to employment, the most important thing is that I have opportunities to progress up the ladder.

While CR4, AR5, CR6, and AR6 did not correlate at 0.3 or above with any other measures for their intended constructs, they each correlated at 0.3 or above with one or more measures for other constructs. Therefore, CR4, AR5, CR6, and AR6 were maintained in case they loaded onto an unexpected but theoretically meaningful factor or component. All of the other reflexivity measures were also maintained because they correlated at 0.3 above with at least one other measure for the same construct (Field, 2018).

After removal of the measures with no correlations at 0.3 or above, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .771, which equates to 'middling' according to Kaiser and Rice (1974; cited in Field, 2018: 798) and suggests that the sample size was adequate for FA and PCA. All KMO values for individual items were greater than 0.5 for each item, indicating that the data were suitable for the analysis (Field, 2018: 809). Bartlett's test of sphericity was significant (p <.001), indicating sufficient correlations between the variables to proceed with the analysis (Field, 2018: 810). Finally, the determinant of the correlation matrix (.004) was bigger than 0.000001, which indicated that multicollinearity was not a problem (Field, 2018: 809).

3.2.3 A note about the way the FA and PCA results have been presented.

All original output tables containing the full results of the FA and PCA can be found in Appendix 4. However, the tables presented in the main body of the thesis have been designed to make the results more digestible and easier to interpret. To this end, values above 0.3 and below -0.3 have been emboldened and colour-coded according to which construct the corresponding measure was designed to measure. This approach clarifies the extent to which each 'cluster' of measures is made up of measures that were designed to measure the same construct. Values in the tables that were emboldened and colour-coded corresponded to measures that had the potential

to be retained for the Confirmatory Factor Analysis, because their loading scores were above 0.3 or below -0.3.

Cronbach's Alpha tests were used throughout the FA and PCA to check the internal reliability of any sets of new measures that appeared to be valid. For the reader's convenience, the results of the Cronbach's Alpha internal reliability tests are presented at the bottom of the tables containing the FA and CFA results. Output tables for the internal reliability tests for the reflexivity measures are presented Appendix 5.

3.2.4 Evidence from the Factor Analysis (FA) of the new reflexivity measures

Following the preliminary analysis which was summarised in section 4.2.2 and resulted in the exclusion of six reflexivity measures, a FA (Principal axis factoring) of the remaining 21 reflexivity measures was conducted. When using the Oblimin method, the rotation failed to converge in 50 iterations, and there were no correlations above 0.32 between factors; therefore, the Varimax rotation method was used. The analysis using the varimax rotation method revealed a total of six factors with eigenvalues greater than 1.00, cumulatively accounting for 58.541% of the total variance (see Appendix 4). The results of the FA for the reflexivity measures are presented in Table 10.

Table 10: Factor Analysis (FA) of Reflexivity Measures

Colour-coding key: **Meta Reflexivity Measures** **Communicative Reflexivity Measures** **Autonomous Reflexivity Measures** **Fractured Reflexivity Measures**	**Rotated Factor Matrix**					
	1	2	3	4	5	6
MR6: When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	**.647**	-.075	.143	.056	-.103	.036
MR1: I reflect on my experiences so that I can try and help other people.	**.637**	.097	.071	-.008	-.037	.043
MR5: I think a lot about how to improve myself and society.	**.592**	-.024	.105	.032	.000	.225
MR2: I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	**.585**	.020	.000	.068	.289	-.109
MR4: When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	**.511**	.089	.102	-.070	.251	-.048

CR4: I put family and close friends before everything else.	**.459**	.140	-.106	.176	.164	-.273
MR3: I try to live up to ethical ideals, even if it costs me to do so.	**.418**	-.037	-.026	-.224	.023	.174
AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	**.418**	**.328**	.020	-.044	-.072	.216
MR7: My ideas of how society ought to be are always frustratingly different from how things actually are.	**.392**	**-.305**	-.059	.063	-.134	.254
AR2: I know myself very well and am confident in my ability to be self-reliant.	.112	**.615**	.076	-.144	-.241	.262
CR6: I am happy with the way things are in my life.	.043	**.486**	.136	-.221	.005	-.008
FR4: I have no idea what to prioritise at the minute.	.022	**-.435**	-.292	.127	.260	.168
AR1: Being decisive comes easily to me.	.034	**.324**	.077	-.112	-.278	.082
AR5: I have a good idea of where I want to be in the future and how I can get there.	.124	.137	**.953**	.011	-.062	.125
FR3: I currently have no idea of what I want to do or who I want to be.	-.142	-.186	**-.628**	.136	.098	.077
FR2: Thinking rarely leads me to a purposeful plan of action and often makes things worse.	-.060	-.190	-.034	**.733**	.166	.001
FR5: I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.039	**-.470**	-.077	**.617**	.161	-.044
FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed.	.198	**-.314**	-.172	**.441**	.288	.045
CR1: Before making decisions, I like to check what other people think I should do.	.158	-.102	-.068	.097	**.660**	-.044
CR3: I usually trust the judgement of others more than my own.	-.029	-.186	-.076	.206	**.480**	-.112
AR6: Building an independent life for myself is more important to me than staying where my family and close friends are.	.122	.115	-.001	.001	-.089	**.571**

Cronbach's Alpha Internal Reliability Scores	MR6, MR1, MR5, MR2, MR4, CR4, MR3, AR4, MR7 = .758 If CR4 deleted = .748 If AR4 deleted = .745 If CR4 and AR4 deleted = .736 If CR4, AR4, and MR7 deleted: .737.	AR4, AR2, AR1, CR6 = .565		FR2, FR5, FR1 = .741		
Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.						
a. Rotation converged in 10 iterations.						

The six factors revealed in the FA will now be discussed in turn, to explain which 'clusters' of measures were retained for the subsequent Confirmatory Factor Analysis (CFA).

Factor 1

As shown in table 10, Factor 1 contained nine individual measures with loading scores of 0.3 or above. These were MR6, MR1, MR5, MR2, MR4, CR4, MR3, AR4, and MR7. The Cronbach's alpha score for this combination of measures was .758.

There were no prior reasons to expect that CR4 or AR4 would positively load onto a factor which measures of meta reflexivity also positively loaded onto. However, it is possible that AR4 could be more reflective of meta reflexivity than autonomous reflexivity if AR4 is considered an ethical value; in which case one would expect people to score highly on AR4 ('I take a lot of responsibility for myself and I believe that others should be encouraged to do this too') if they also score highly for MR3 ('I try to live up to ethical ideals, even if it costs me to do so'). Therefore, it was worthwhile to retain AR4 as part of this combination in the subsequent CFA.

A positive relationship between CR4 and meta reflexivity was harder to theorise. However, if concern for family and close friends is part of the *ethical ideals* which a person tries to live up to (MR3), it is possible that such a person would *put family and close friends before everything else* (CR4). Therefore, it is possible that CR4 could have been an unintended measure of meta reflexivity. However, this would only be the case if concern for family and close friends (CR4) was part of the ethical ideals of a highly meta-reflexive individual, and there is no reason for assuming that this *would* be the case for all highly meta-reflexive individuals. Nonetheless, given the tenuous theoretical relationship and the acceptable internal reliability score, it was worthwhile to include CR4 as part of this cluster for the subsequent CFA.

Despite the fact that MR7 positively loaded onto factor 1 (.392), the internal reliability tests revealed that the Corrected Item-Total Correlation score for MR7 (.297) was below 0.3. This was problematic because, according to Field (2018: 826), Corrected Item-Total Correlation values below 0.3 indicate that a particular item does not correlate well enough with the overall scale. Therefore, MR7 was not retained as part of this combination for CFA. Removal of MR7 did not influence the Cronbach's alpha score for this cluster of measures, which remained at .758.

Factor 2

As shown in table 10, Factor 2 contained eight measures with loading scores of 0.3 or above. These were AR4, -MR7, AR2, CR6, -FR4, AR1, -FR5, and -FR1 (a minus sign denotes a negative correlation with the factor).

-FR5 and -FR1 were excluded from this cluster because they both loaded positively onto factor 4 with stronger loading scores. MR7 was also excluded because it positively loaded onto factor 1 with a stronger loading score. However, because -FR4 negatively loaded onto factor 2, -FR4 was reversed coded in a new dataset so that Cronbach's alpha score could be calculated to test internal reliability of AR1, AR2, AR4, CR6, and -FR4. The Cronbach's alpha score for this cluster of five measures was only .565. This score only improved to .608 when CR6 was removed from the cluster, and it only improved to .541 if FR4 was also removed. Furthermore, the internal reliability score for AR1, AR2, and AR4 was only .555. Therefore, because the Cronbach's alpha scores were all well below 0.7, and because AR1, AR2, and AR4 did not load onto the same factor again in the PCA in the next subsection, no cluster of measures from factor 2 was included in the subsequent CFA.

Factor 3

As shown in table 10, factor 3 contained two measures with loading scores above 0.3 or below -0.3. These were AR5 and -FR3. However, because at least three or four distinct variables are needed to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no cluster of measures from factor 3 was included in the subsequent CFA.

Factor 4

As shown in table 10, Factor 4 contained three measures with loading scores above 0.4. These were FR2, FR5, FR1. The Cronbach's alpha internal reliability score (.741) for this cluster of measures was above 0.7; therefore, this cluster was included in the subsequent CFA.

Factor 5

As shown in table 10, Factor 5 contained two measures with loading scores above 0.3. These were CR1 and CR3. However, because at least three or four distinct variables are needed to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no combination of measures from factor 5 was included in the subsequent CFA.

Factor 6

As table 10 shows, Factor 6 contained only one measure with a loading score above 0.3. This was AR6. Hence, because at least three or four distinct variables are needed to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no cluster of measures from factor 6 was included in the subsequent CFA.

3.2.5 Evidence from the Principal Components Analysis (PCA) of the New Reflexivity Measures

Following the FA of the new reflexivity measures which has just been presented above in section 4.2.4, a PCA of the remaining 21 reflexivity statements was conducted. When using the Oblimin method, the rotation failed to converge in 50 iterations and there were no correlations above 0.32 between factors; therefore, the Varimax rotation

method was used. The analysis using the varimax rotation method revealed a total of six components with eigenvalues greater than 1.00, cumulatively accounting for 58.53% of the total variance (see Appendix 4). The results of the PCA for the reflexivity measures are presented in Table 11.

Table 11: Principal Components Analysis (PCA) of Reflexivity Measures

	Rotated Component Matrix					
Colour-coding key: **Meta Reflexivity Measures** **Communicative Reflexivity Measures** **Autonomous Reflexivity Measures** **Fractured Reflexivity Measures**	**1**	**2**	**3**	**4**	**5**	**6**
MR1: I reflect on my experiences so that I can try and help other people.	**.687**	-.122	-.021	-.089	.068	.117
MR2: I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	**.671**	.299	.022	-.001	-.041	-.015
MR6: When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	**.653**	-.126	.051	-.204	.298	.005
CR4: I put family and close friends before everything else.	**.634**	.025	.213	.188	-.281	-.191
MR5: I think a lot about how to improve myself and society.	**.610**	-.064	.001	-.128	.287	.188
MR4: When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	**.599**	.274	-.139	-.140	-.093	.032
CR1: Before making decisions, I like to check what other people think I should do.	.249	**.694**	.089	.110	-.126	-.029
AR1: Being decisive comes easily to me.	.121	**-.652**	-.085	-.006	-.176	-.004
CR3: I usually trust the judgement of others more than my own.	.045	**.569**	.273	.121	-.112	-.144
AR2: I know myself very well and am confident in my ability to be self-reliant.	.163	**-.493**	-.234	-.073	**-.357**	**.388**
FR2: Thinking rarely leads me to a purposeful plan of action and often makes things worse.	-.017	.157	**.827**	.042	.056	.008
FR5: I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.041	.240	**.717**	.105	**.316**	-.149

FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed.	.198	**.386**	**.542**	.192	.204	.098
MR3: I try to live up to ethical ideals, even if it costs me to do so.	**.421**	.077	**-.463**	.059	**.351**	.104
AR5: I have a good idea of where I want to be in the future and how I can get there.	.123	-.096	-.005	**-.881**	-.033	.106
FR3: I currently have no idea of what I want to do or who I want to be.	-.125	.066	.143	**.835**	.091	.019
FR4: I have no idea what to prioritise at the minute.	-.014	**.373**	.137	**.425**	**.411**	.032
MR7: My ideas of how society ought to be are always frustratingly different from how things actually are.	**.312**	-.088	.072	.056	**.620**	.185
CR6: I am happy with the way things are in my life.	.118	-.099	**-.306**	-.152	**-.559**	.202
AR6: Building an independent life for myself is more important to me than staying where my family and close friends are.	-.017	-.025	-.009	-.041	.121	**.895**
AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	**.447**	-.168	-.092	-.020	-.168	**.503**
Cronbach's Alpha Internal Reliability Scores	(MR6, MR1, MR5, MR2, MR4, CR4, MR3, AR4, MR7) = .758 If CR4 deleted = .748 If AR4 deleted = .745 If CR4 and AR4 deleted = .736	CR1, -AR1, CR3, -AR2, and FR4 = .086	FR2, FR5, FR1 = .741	-AR5, FR3, FR4 = .397	FR4, MR7, and -CR6 = .215	AR2, AR6, AR4 = .513

	If CR4, AR4, and MR7 deleted: .737					

The six components revealed in the PCA will now be discussed in turn, to explain which 'clusters' of measures were retained for the subsequent Confirmatory Factor Analysis.

Component 1

As table 11 shows, Component 1 contained nine measures with positive loading scores of 0.3 or above. These were MR1, MR2, MR6, CR4, MR5, MR4, MR3, MR7, and AR4. This is the same cluster of measures that loaded onto factor 1 in the FA, with the only difference being the order in which the measures loaded onto the component. Therefore, Component 1 in the PCA provided further justification for including this cluster of measures in the subsequent CFA, with the exclusion of MR7 because of reasons explained in the discussion of Factor 1 in section 3.2.4.

Component 2

As table 11 shows, Component 2 contained six measures with loading scores above 0.3 or below -0.3. These were CR1, -AR1, CR3, -AR2, FR1, and FR4.

FR1 was excluded from this combination because it positively loaded onto component 3 with a stronger loading score. There was no reason for assuming that characteristics of communicative and fractured reflexivity could not be inversely related to aspects of autonomous reflexivity. Therefore, given that AR1 and AR2 negatively loaded onto component 2, it could have been justifiable to include a combination of measures from component 2 in the subsequent CFA. However, after AR1 and AR2 were reversed coded in a new dataset so that Cronbach's alpha internal reliability score could be calculated, the Cronbach's alpha score for this cluster was only .086. This score could only be improved to .142 if AR1 was deleted. Therefore, no cluster of measures from component 2 was included in the subsequent CFA.

Component 3

Table 11 shows that Component 3 contained five measures with loading scores above 0.3 or below -0.3. These were FR2, FR5, FR1, -MR3, and -CR6. While there was no obvious theoretical relationship between this combination of measures, Cronbach's alpha was calculated to test their internal reliability. Because MR3 and CR6 negatively loaded onto the factor, they were both reverse-coded in a new dataset so that Cronbach's could be calculated. However, the Cronbach's alpha score was only .437, and this score could not be improved by deleting any measures from the calculation. Therefore, the cluster of measures from component 3 was not included in the subsequent CFA. Nonetheless, the findings from component 3 strengthened the case for including the cluster of FR2, FR5, and FR1 in CFA, given that these measures also positively loaded onto factor 4 (above) with a Cronbach's alpha score of .741.

Component 4

As table 11 shows, Component 4 contained three measures with loading scores above 0.3 or below -0.3. These were -AR5, FR3, and FR4.

Because AR5 negatively loaded onto component 4, it was reverse-coded in a new dataset so that a Cronbach's alpha score could be calculated to test the internal reliability of this cluster of measures. However, the Cronbach's alpha score was only .397, and deletion of a single measure from the calculation would have left only two measures remaining, which would have been below the necessary number of individual measures needed to constitute a valid and internally reliable measurement scale (Meyers et al., 2016: 441; Watkins, 2018: 222). Therefore, no cluster of measures from component 4 was included in the subsequent CFA.

Component 5

Table 11 shows that Component 5 contained six measures with loading scores above 0.3 or below -0.3. These were -AR2, FR5, MR3, FR4, MR7, and -CR6.

-AR2 was excluded from this cluster because it loaded onto components 2 and 6 more strongly. FR5 was also excluded from this cluster because it loaded onto component 3 more strongly with measures that were more obviously theoretically related to it (namely, FR1 and FR2). Finally, MR3 was excluded from this cluster because it loaded onto component 1 more strongly with other meta reflexivity measures that were more obviously theoretically related to it.

After -CR6 was reverse-coded, Cronbach's alpha was calculated for the remaining cluster of measures. The Cronbach's alpha score was only .215, and deletion of a single measure would have left only two measures remaining, which would have been below the necessary number of individual measures needed to constitute a valid and internally reliable measurement scale (Meyers et al., 2016: 441; Watkins, 2018: 222). Therefore, no cluster of measures from component 5 was included in the subsequent CFA.

Component 6

Component 6 contained three measures with loading scores above 0.3. These were AR2, AR6, and AR4. The Cronbach's alpha score for this cluster of three measures was only .513, and deletion of a single measure would have left only two measures remaining, which would have been below the necessary number of individual measures needed to constitute a valid and internally reliable measurement scale (Meyers et al., 2016: 441; Watkins, 2018: 222). Therefore, no cluster of measures from component 6 was included in the subsequent CFA.

3.2.6 Summary of Assessment of the Validity and Internal Reliability of the New Reflexivity Measures

The results of the FA and PCA were relatively similar, and the subsequent discussions of each factor and component led to the conclusion that two clusters of reflexivity measures were valid and internally reliable enough to be included in a subsequent CFA, which is presented in the next section 3.2.7. Those two clusters were:

Cluster 1

- MR6: When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.
- MR1: I reflect on my experiences so that I can try and help other people.
- MR5: I think a lot about how to improve myself and society.
- MR2: I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.
- MR4: When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.
- MR3: I try to live up to ethical ideals, even if it costs me to do so.

- CR4: I put family and close friends before everything else.
- AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.

Cluster 2

- FR2: When I try to think things through, I usually end up feeling stressed and overwhelmed.
- FR5: I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.
- FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed.

Therefore, the Exploratory Factor Analysis of the reflexivity measures – which involved FA, PCA, and internal reliability tests – provided evidence to suggest that Cluster One and Cluster Two were each measuring an underlying construct. More specifically, it appeared that the measures in Cluster One were measuring Meta Reflexivity, whereas the measures in Cluster Two appeared to be measuring Fractured Reflexivity. Following the Exploratory Factor Analysis, Confirmatory Factor Analysis was used to evaluate the initial findings. The results of the Confirmatory Factor Analysis will now be presented in the next section.

3.2.7 Evidence from the Confirmatory Factor Analysis of the New Reflexivity Measures

The Confirmatory Factor Analysis (CFA) was based on data from the same sample of 336 university students which was used above in the FA and PCA. However, 33 cases were removed because they had missing responses to one or more of the individual measures. This meant that the sample size for the CFA was 303.

The initial model proposed in the CFA were evaluated without including any correlations between error variables. This lack of specification is an acknowledged oversimplification of the models because errors are frequently correlated, but it is usually difficult to determine at the outset the error correlations that need to be accounted for in configuring original models (Meyers et al. 2016).

Model 1

Figure 3 and Table 12 show that the results from Model 1 yielded pattern coefficients between the factors and measures that were all reasonably robust, ranging from .40 to .78. However, the fit indexes for Model 1 revealed a statistically significant chi square test with a value of 119.979 (43, N = 303), p = .000. Furthermore, the GFI (.934), IFI (.891), TLI (.858), and RMSEA (.077) showed values that, taken together, suggest that Model 1 was an inadequate fit with the data because the CFI, NFI, IFI and TLI scores were below .90 and, therefore, below acceptable levels of fit.

Figure 3: CFA Model 1 for Reflexivity Measures

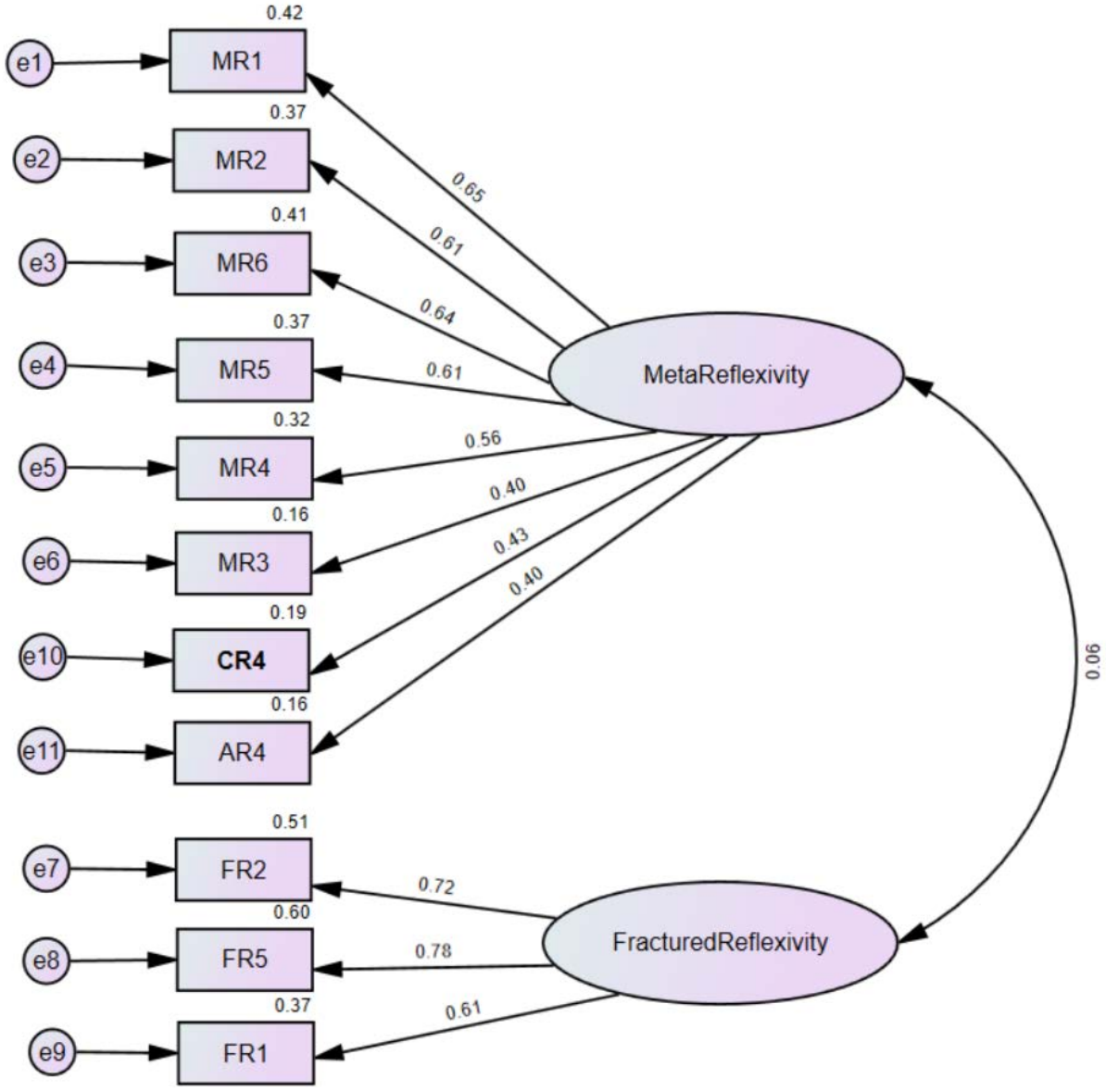


Table 12: Model Fit Indexes Summary for Model 1 of Reflexivity Measures

Absolute Indexes	Relative Indexes	Parsimonious Indexes	Model Comparison Indexes

Test	Target Value	Actual Value	Test	Target Value	Actual Value	Test	Target Value	Actual Value	Test	Target Value	Actual Value
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.889**	AGFI	≥ .90	**.899**	AIC	Lower	**165.979**
X^2/df	≤ 2.00**	**2.78**	NFI	≥ .95*	**.840**	PGFI	> .50	**.609**	BCC	Lower	**167.882**
GFI	≥ .95*	**.934**	IFI	≥ .95*	**.891**	PNFI	> .50	**.657**	BIC	Lower	**251.395**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.858**				ECVI	Lower	**.550**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.077**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Because Model 1 was an inadequate fit with the data, an assessment was made to identify reasonable modifications that could be made to establish a better fitting model (Meyers et al. 2018: 543). At this point, the most reasonable step was to remove measures from the model which had the weakest pattern coefficients and were least theoretically related to the other variables in the combination. Hence, AR4 was removed first because AR4 had the weakest pattern coefficient and had not been designed as an indicator of meta reflexivity, which is what the majority of measures in Cluster One appeared to be measuring. The results of this modification are presented in Model 2.

Model 2

Figure 4 and Table 13 show that removal of AR4 improved the model fit slightly, most notably by improving the IFI score to .900, which indicated an acceptable level of fit. However, the CFI (.898), NFI (.855) and TLI (.865) were still below acceptable levels of fit. Therefore, additional reasonable steps were taken to further improve the model fit (Meyers et al. 2018).

Figure 4: CFA Model 2 for Reflexivity Measures

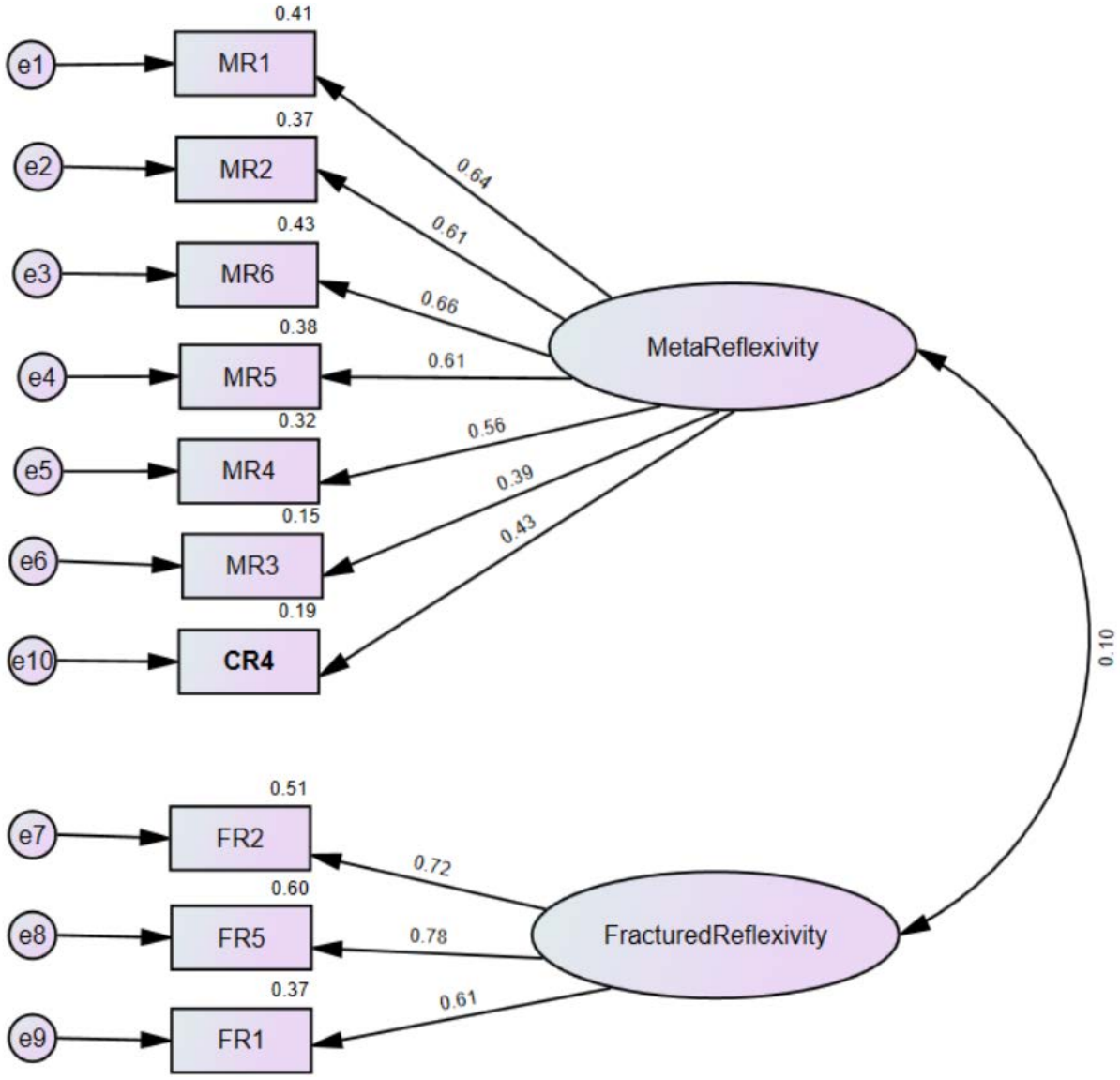


Table 13: Model Fit Indexes Summary for Model 2 of Reflexivity Measures

Absolute Indexes			**Relative Indexes**			**Parsimonious Indexes**			**Model Comparison Indexes**		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.898+**	AGFI	≥ .90	**.903+**	AIC	Lower	**141.708**
X^2/df	≤ 2.00**	**2.92+**	NFI	≥ .95*	**.855+**	PGFI	> .50	**.581-**	BCC	Lower	**143.295**
GFI	≥ .95*	**.940+**	IFI	≥ .95*	**.900+**	PNFI	> .50	**.646-**	BIC	Lower	**219.696**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.865+**				ECVI	Lower	**.469**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.080+**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Model 3

Because Model 2 was an inadequate fit with the data, an assessment was made to identify reasonable modifications that could be made to establish a better fitting model (Meyers et al. 2018: 543). Given that CR4 had the second-lowest coefficient (.43) and was least theoretically related to the other measures in the model – all of which were designed to measure meta reflexivity – removal of CR4 was the most reasonable next step to improve the model fit.

As Figure 14 and Table 5 show, the decision to exclude CR4 resulted in a slightly improved model. Most notably, the CFI value was now within the acceptable threshold. However, the NFI and TLI indexes were both still below the acceptable thresholds. Therefore, additional steps were taken to improve the model fit.

Figure 5: CFA Model 3 for Reflexivity Measures

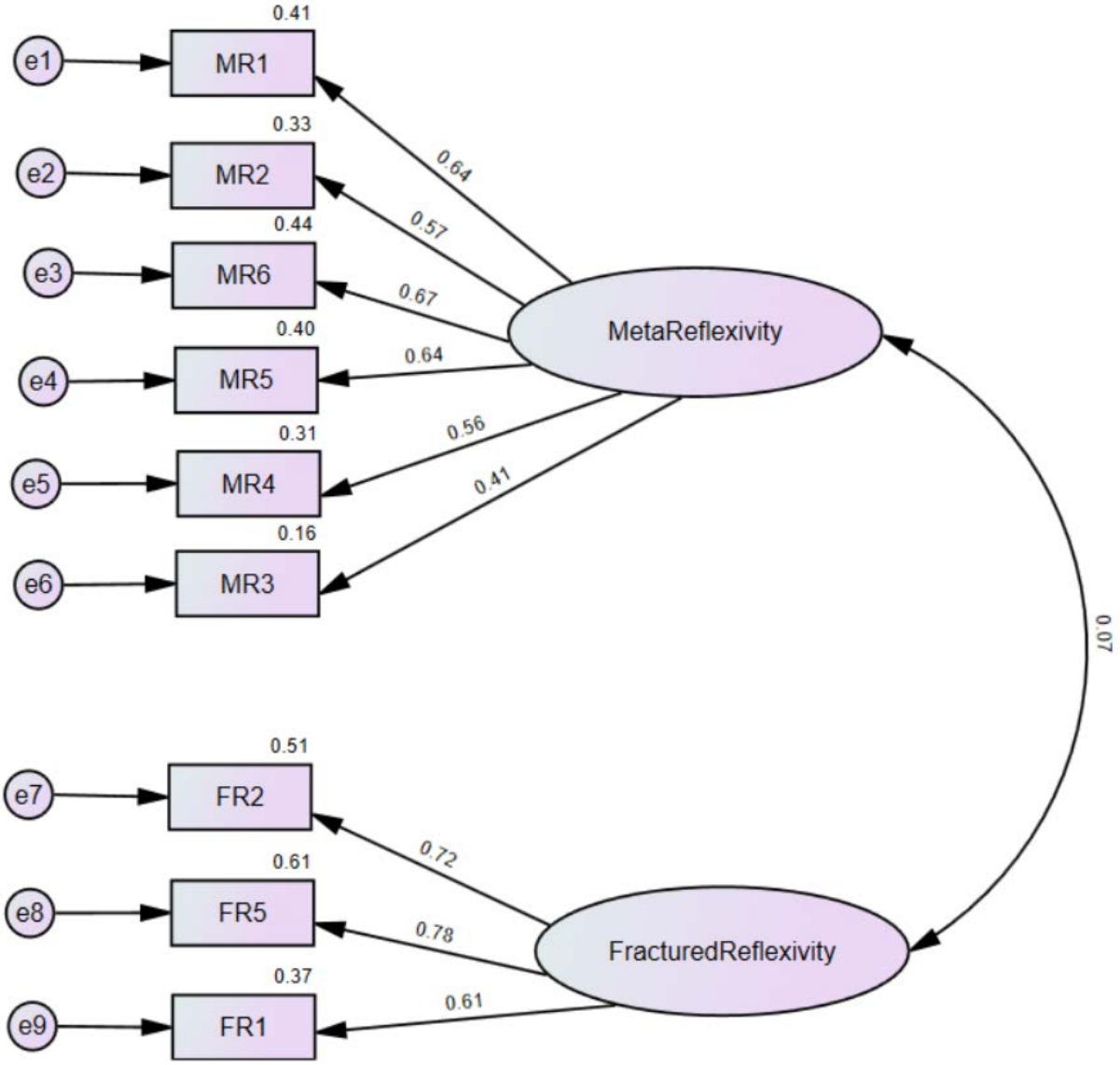


Table 14: Model Fit Indexes Summary for Model 3 of Reflexivity Measures

Absolute Indexes			**Relative Indexes**			**Parsimonious Indexes**			**Model Comparison Indexes**		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.912+**	AGFI	≥ .90	**.914+**	AIC	Lower	**115.748**
X^2/df	≤ 2.00**	**2.98+**	NFI	≥ .95*	**.875+**	PGFI	> .50	**.549-**	BCC	Lower	**117.050**
GFI	≥ .95*	**.950+**	IFI	≥ .95*	**.913+**	PNFI	> .50	**.632-**	BIC	Lower	**186.309**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.878+**				ECVI	Lower	**.383**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.081+**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Model 4

Given that removal of AR4 and CR4 from the model had still not achieved acceptable levels of model fit, further reasonable steps were taken in line with the recommendations of Meyers et al., (2018). This involved examining the modification indexes to identify if the addition of some correlations between error variables would improve the model fit.

An examination of the modification indices suggested that the addition of correlations between several pairs of errors would improve the model fit. One of the suggested correlation paths was between errors within measures of the same construct: e2 (associated with MR2) and e5 (associated with MR4). Because both of these measures were intended to measure the same construct and might have more in common with each other beyond their shared factor variance, it was reasonable to account for those correlations in specifying the model (Meyers et al. 2016).

Figure 6: CFA Model 4 for Reflexivity Measures

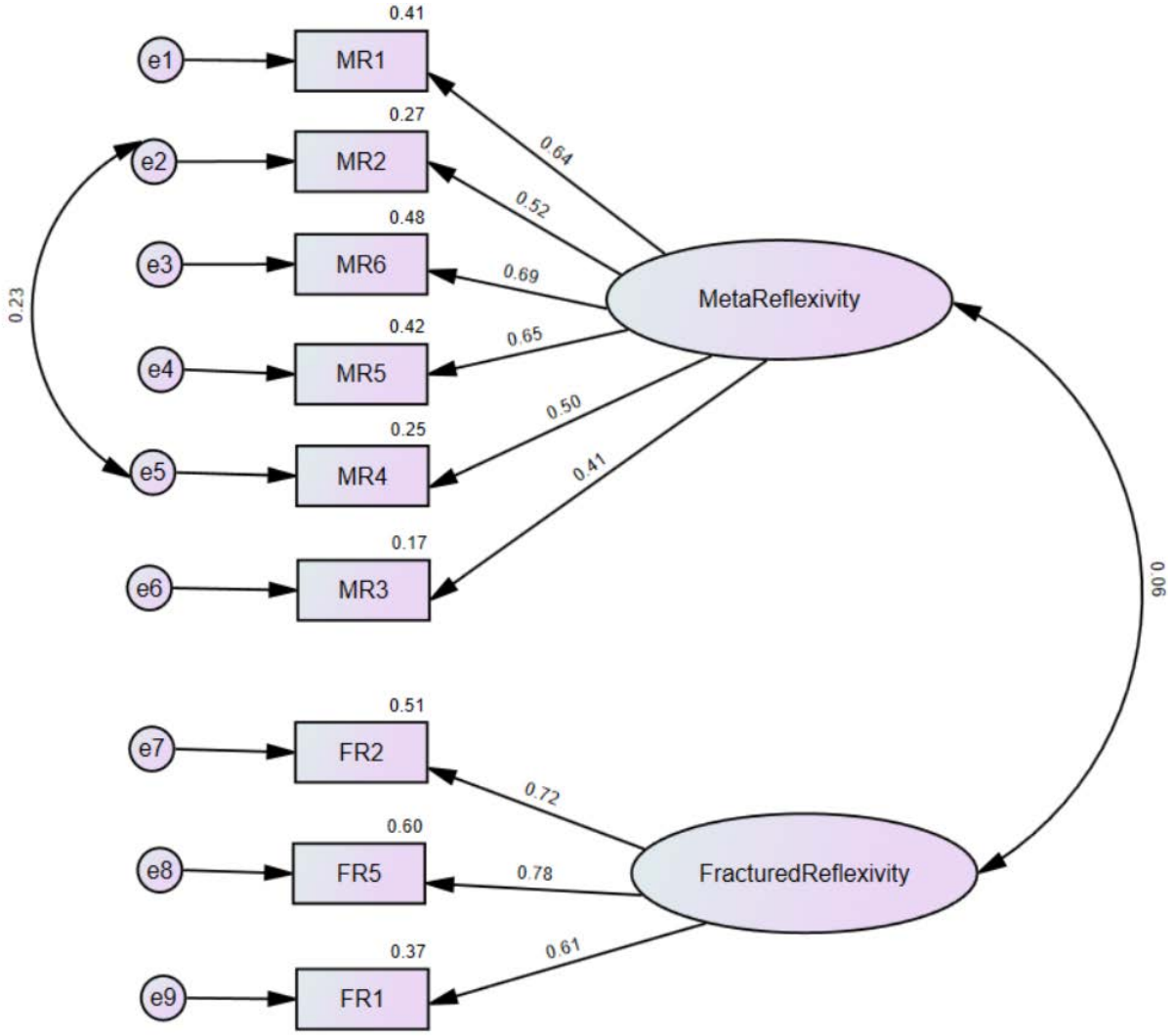


Table 15: Model Fit Indexes Summary for Model 4 of Reflexivity Measures

Absolute Indexes			**Relative Indexes**			**Parsimonious Indexes**			**Model Comparison Indexes**		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.932**	AGFI	≥ .90	**.925**	AIC	Lower	**105.082**
X^2/df	≤ 2.00**	**2.60**	NFI	≥ .95*	**.895**	PGFI	> .50	**.533**	BCC	Lower	**106.452**
GFI	≥ .95*	**.959**	IFI	≥ .95*	**.933**	PNFI	> .50	**.622**	BIC	Lower	**179.357**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.902**				ECVI	Lower	**.348**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.073**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

As Figure 6 and Table 15 show, accounting for the error correlation between e2 and e5 improved the model fit to the point where all indexes were within acceptable levels, except for the NFI index which was still slightly below the acceptable threshold. Hence,

although the NFI index was slightly below the acceptable threshold, Model 4 was considered an acceptable fit with the data.

Therefore, the empirical data in this thesis provide evidence to support the following conclusions:

1) MR6, MR1, MR5, MR2, MR4, and MR3 can be considered valid and internally reliable indicators of meta reflexivity.
2) FR2, FR5, and FR1 can be considered valid and internally reliable indicators of fractured reflexivity.

This evidence shows that objective one of this thesis has been partially achieved, because this thesis has successfully created new valid and internally reliable quantitative measures of two of the four modes of reflexivity identified and described by Archer (2003; 2007; 2012).

Now that the results assessing the validity and internal reliability of the new reflexivity measures have been presented, the thesis will now move on to Part Two of the findings chapter, which will assess the validity and internal reliability of the motivation measures.

3.3 Findings Chapter Part Two: Assessing the Validity and Internal Reliability of the Motivation Measures

Part Two of the findings chapter presents the Exploratory and Confirmatory Factor Analysis results of the measures of motivation. Hence, this part of the chapter will address research objective 2 of the thesis, which was to create new valid and internally reliable quantitative measures of the three kinds of motivation described by Ryan and Deci (2018).

3.3.1 Exploratory Factor Analysis of the Motivation Measures

The motivation measures were analysed using the same approaches that were used to analyse the reflexivity measures. More specifically, Exploratory Factor Analysis – consisting of Factor Analysis (FA) and Principal Components Analysis (PCA) – was used to examine patterns in the data and assess the validity of the measures of motivation. Cronbach's Alpha tests were then used to check the internal reliability of any sets of new measures that appeared to be valid. Once again, this approach made it possible to identify and consider all clusters of measures that:

a) 'loaded' onto a mutual factor or component with loading scores above the 0.3 threshold or below -0.3 threshold (Field, 2018: 795); and
b) achieved an internal reliability score of 0.7 or above (Field, 2018: 823; Meyers et al., 2016: 443).

This process ensured that all clusters of measures that could have been valid and internally reliable measures of a meaningful underlying construct were included in the subsequent Confirmatory Factor Analysis (CFA).

3.3.2 Preliminary Analysis of the Motivation Measures

Before the FA and PCA was conducted, a preliminary analysis was used to screen the data, test assumptions, and assess the adequacy of the sample (Field, 2018: 806). This made it possible to identify and eliminate any motivation measures that it would not have been appropriate to include in the FA and PCA. Outputs for the preliminary analysis for the motivation measures are available in Appendix 6.

The first stage of preliminary analysis for the motivation measures involved scanning the correlation matrix which contains correlation coefficients for all pairs of individual measures and corresponding significance values. The preliminary analysis

revealed no correlations above 0.9, and no individual measures failed to correlate at 0.3 or above with any other individual measure. Hence, all of the motivation measures were retained because no pair of individual measures were either too different or too similar.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .826, which is 'Meritorious' according to Kaiser and Rice, (1974; cited in Field, 2018: 798). All KMO values for individual measures were greater than 0.5 for each item, indicating that the data were suitable for principal component analysis (Field, 2018: 809). Bartlett's test of sphericity was significant (*p* .000), indicating sufficient correlations between the measures to proceed with the analysis (Field, 2018: 810). Finally, the determinant of the correlation matrix (.001) was bigger than 0.000001, which indicated that multicollinearity was not a problem (Field, 2018: 809).

As with the analysis of reflexivity measures in 4.2.4, output tables containing full results of the Exploratory Factor Analysis of motivation measures can be found in the appendices (Appendix 7). Once again, the tables presented in the motivation findings sections have been designed to make the results easier to digest and interpret. To this end, values above 0.3 and below -0.3 have been emboldened and colour-coded according to which construct the corresponding measure was designed to measure. This approach clarifies the extent to which each 'cluster' of measures is made up of measures that were designed to measure the same construct. Values in the tables that were emboldened and colour-coded corresponded to measures that had the potential to be retained for the Confirmatory Factor Analysis, because their loading scores were above 0.3 or below -0.3.

Cronbach's Alpha tests were used throughout the FA and PCA to check the internal reliability of any sets of new measures that appeared to be valid. For the reader's convenience, the results of the Cronbach's Alpha internal reliability tests are presented at the bottom of the tables containing the FA and CFA results. Output tables for the internal reliability tests of the motivation measures are presented Appendix 8.

3.3.3 Evidence from the Factor Analysis (FA) of the Motivation Measures

A factor analysis (Principal axis factoring) of the 17 motivation measures was conducted. When the Oblimin method was used, the factor correlation matrix revealed correlations between factors of more than 0.32; therefore, the Oblimin method was maintained. The analysis revealed a total of five components with eigenvalues greater

than 1.00, cumulatively accounting for 67.417% of the total variance (see Appendix 7). The results of the FA for the motivation measures are presented in Table 16.

Table 16: Factor Analysis (FA) of Motivation Measures

Pattern Matrix[a]					
Colour-coding key: **Intrinsic Motivation Measures** **Extrinsic Motivation Measures** **Amotivation Measures**	Factor				
	1	2	3	4	5
IM2: I come to university because I am fascinated by my subject and I want to spend time studying it.	**.852**	-.013	-.055	.072	-.002
IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it.	**.813**	-.006	.041	.023	.150
IM1: I come to university because I genuinely love to learn.	**.712**	.012	-.011	-.100	-.022
IM3: I come to university because I really enjoy the challenge.	**.466**	-.073	-.068	-.188	.046
AMo2: Honestly, I do not know - I feel like I am wasting my time at university.	.073	**.880**	.060	.112	-.089
AMo3: I do not feel interested in university and I wonder whether I should continue.	.006	**.826**	-.037	.160	-.089
AMo1: I come to university because I do not know what else to do.	-.200	**.503**	.059	-.086	.146
EM6: I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	.006	**.437**	-.029	-.173	.022
EM2: I come to university because it will help me to find a job that I enjoy.	.007	-.076	**-.779**	-.001	.035
EM1: I come to university because it will prepare me for a career that I have in mind.	.157	-.095	**-.732**	.170	-.022
EM5: I come to university so that I can get a well-paid job at the end.	-.049	.094	**-.727**	-.095	-.038
EM7: I come to university because it will make me more employable.	-.119	.093	**-.459**	-.256	.143
EM4: I come to university because success here will make me feel much better about myself.	-.023	-.016	-.075	**-.851**	-.091
IM6: I come to university because I really want to grow as a person.	.167	-.176	-.076	**-.491**	.162
EM3: I come to university because I want to show that I am capable of completing a degree.	.251	.141	-.061	**-.482**	-.014

IM7: I come to university because I really enjoy meeting new people and socialising.	.027	.009	.017	.070	**.669**
IM4: I come to university because it gives me opportunities to do things that interest me.	.268	-.162	-.211	-.025	**.457**
Cronbach's Alpha Internal Reliability Scores	IM2, IM5, IM1, IM3 = .829	AMo2, AMo3, AMo1, EM6 = .732 If EM6 deleted = .763	EM2, EM1, EM5, EM7 = .779	EM4, IM6, EM3 = .711	
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.[a]					
a. Rotation converged in 9 iterations.					

The five factors revealed in the FA will now be discussed in turn, to explain which 'clusters' of measures were retained for the subsequent Confirmatory Factor Analysis.

Factor 1

Table 16 shows that Factor 1 contained four measures with loading scores above 0.4. These were IM2, IM5, IM1, and IM3. The Cronbach's alpha score for this cluster of measures was .829. This could have been improved to .839 if IM3 was deleted. However, given that the difference in the internal reliability score was minimal, IM3 was retained so that all four measures could be used in the CFA.

Factor 2

Table 16 shows that Factor 2 contained four measures with loading scores above 0.4. These were AMo2, AMo3, AMo1, and EM6. The Cronbach's alpha for the four measures was .732. However, the Cronbach's alpha score improved to .763 if EM6 was removed. Therefore, given that EM6 was not designed to measure amotivation and that it was not theoretically related to the Amotivation measures, it was not retained as part of this cluster in the subsequent CFA.

Factor 3

Table 16 shows that Factor 3 contained four measures with loading scores below -0.4. These were EM2, EM1, EM5, EM7. The Cronbach's alpha score for this cluster of

measures was .779. This could not be improved via deletion of any measures. Therefore, this cluster of measures was included in the subsequent CFA.

Factor 4

Table 16 shows that Factor 4 contained three measures with loading scores below -0.4. These were EM4, IM6, and EM3. The Cronbach's alpha score for this cluster of measures was .711. However, given that there was no theoretical relationship between these three measures and that this thesis was only interested in measuring intrinsic, extrinsic, or amotivation per se, this cluster of measures was not included in the CFA.

Factor 5

Table 16 shows that Factor 5 contained two statements with loading scores above 0.4. These were IM7 and IM4. However, because at least three or four distinct variables are needed to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no cluster of measures from factor 5 was included in the subsequent CFA.

3.3.4 Evidence from the Principal Components Analysis (PCA) of the Motivation Measures

Following the FA of the motivation measures that was presented in 4.3.3, a PCA of the 17 motivation measures was conducted. When Oblimin method was used, the factor correlation matrix revealed a correlation between factors of more than 0.32 (see Appendix 7); therefore, the Oblimin method was maintained. The analysis revealed a total five components with eigenvalues greater than 1.00, cumulatively accounting for 67.417% of the total variance (see Appendix 7). The results of the PCA for the motivation measures are presented in Table 17.

Table 17: Principal Components Analysis (PCA) of Motivation Measures

Pattern Matrix[a]					
Colour-coding key: **Intrinsic Motivation Measures** **Extrinsic Motivation Measures** **Amotivation Measures**	Component				
	1	2	3	4	5
IM2: I come to university because I am fascinated by my subject and I want to spend time studying it.	**.857**	-.026	-.074	.026	.080

IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it.	**.838**	-.008	.012	.172	.037
IM1: I come to university because I genuinely love to learn.	**.815**	.036	-.001	-.058	-.099
IM3: I come to university because I really enjoy the challenge.	**.586**	-.053	-.039	.011	-.224
AMo2: Honestly, I do not know - I feel like I am wasting my time at university.	.039	**.864**	.055	-.116	.120
AMo3: I do not feel interested in university and I wonder whether I should continue.	-.003	**.849**	-.042	-.113	.179
AMo1: I come to university because I do not know what else to do.	-.222	**.633**	.061	.244	-.088
EM6: I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	.064	**.626**	-.033	.051	-.187
EM5: I come to university so that I can get a well-paid job at the end.	-.043	.112	**-.822**	-.070	-.091
EM2: I come to university because it will help me to find a job that I enjoy.	.029	-.089	**-.813**	.031	-.022
EM1: I come to university because it will prepare me for a career that I have in mind.	.195	-.097	**-.808**	-.018	.215
EM7: I come to university because it will make me more employable.	-.185	.096	**-.553**	.161	**-.328**
IM7: I come to university because I really enjoy meeting new people and socialising.	.048	.037	.035	**.926**	.093
IM4: I come to university because it gives me opportunities to do things that interest me.	**.322**	-.178	-.234	**.491**	-.040
EM4: I come to university because success here will make me feel much better about myself.	-.052	.004	-.105	-.102	**-.860**
EM3: I come to university because I want to show that I am capable of completing a degree.	.275	.162	-.014	-.076	**-.644**
IM6: I come to university because I really want to grow as a person.	.135	-.231	-.040	.184	**-.640**

Cronbach's Alpha reliability score	IM2, IM5, IM1, IM3, IM4 = .836	AMo2, AMo3, AMo1, EM6 = .732 If EM6 deleted = .763	EM2, EM1, EM5, EM7 = .779		EM7, EM4, EM3, IM6 = .726
Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.					
a. Rotation converged in 8 iterations.					

The five components revealed in the PCA will now be discussed in turn, to explain which 'clusters' of measures were retained for subsequent Confirmatory Factor Analysis.

Component 1

Table 17 shows that Component 1 contained five measures with positive loading scores above 0.5. These were IM2, IM5, IM1, IM3, IM4. The Cronbach's alpha score for this combination was .836, which is higher that the Cronbach's alpha score when IM4 is not present, as was the case with Factor 1 in the FA. Therefore, this five-measure cluster was included in the subsequent CFA.

Component 2

Table 17 shows that Component 2 contained four measures with positive loading scores above 0.5. These were AMo2, AMo3, AMo1, and EM6. This finding is consistent with the findings above from factor 2 in the FA. Therefore, component 2 in the PCA provided further support for including AMo2, AMo3, and AMo1 in the subsequent CFA.

Component 3

Table 17 shows that Component 3 contained four measures with negative loading scores below 0.5. These were EM5, EM2, EM1, and EM7. This finding is consistent with factor 3 in the FA, with the exception that the measures loaded onto Factor 3 in a different order. The Cronbach's alpha score for this cluster of measures was .779, and this could not be improved via deletion of any measures. Therefore, Component 3 provided further justification for including this cluster of measures in the subsequent CFA.

Component 4

Table 17 shows that Component 4 contained two measures with loading scores above 0.3. These were IM7 and IM4. However, because at least three or four distinct variables are needed to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no measures that loaded onto Component 4 were included in the subsequent CFA.

Component 5

Table 17 shows that Component 5 contained four measures with loading scores below -0.3. These were EM7, EM4, EM3, IM6. The Cronbach's alpha score for this cluster was .726. However, IM6 was not theoretically related to the other three measures which were all designed to measure extrinsic motivation. Moreover, EM7 loaded onto Component 3 with a higher loading score. Therefore, given that EM4 and EM3 alone would not be enough to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), no measures that loaded onto Component 5 were included in the subsequent CFA.

3.3.5 Summary of Assessment of the Validity and Internal Reliability of the Motivation Measures

The results of the motivations FA and PCA were relatively similar, and the subsequent discussions of each factor and component led to the conclusion that three clusters of motivation measures were valid and internally reliable enough to be included in a subsequent CFA, which will be presented in the next section. Those three clusters were:

Cluster One

- IM1: I come to university because I genuinely love to learn.
- IM2: I come to university because I am fascinated by my subject and I want to spend time studying it.
- IM3: I come to university because I really enjoy the challenge.
- IM4: I come to university because it gives me opportunities to do things that interest me.
- IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it.

Cluster Two

- EM1: I come to university because it will prepare me for a career that I have in mind.
- EM2: I come to university because it will help me to find a job that I enjoy.
- EM5: I come to university so that I can get a well-paid job at the end.
- EM7: I come to university because it will make me more employable.

Cluster Three

- AMo1: I come to university because I do not know what else to do.
- AMo2: Honestly, I do not know - I feel like I am wasting my time at university.
- AMo3: I do not feel interested in university and I wonder whether I should continue.

Confirmatory Factor Analysis (CFA) was then used to evaluate the evidence of the Exploratory Factor Analysis, which suggested that Cluster One, Cluster Two, and Cluster Three were each measuring an underlying construct. More specifically, it appeared that the measures in Cluster One were measuring Intrinsic Motivation; the measures in Cluster Two appeared to be measuring Extrinsic Motivation; and the measures in Cluster Three appeared to be measuring Amotivation. The results of the CFA will now be presented in the next section.

3.3.6 Evidence from the Confirmatory Factor Analysis (CFA) of the Motivation Measures

Once again, the CFA was based on data from the same sample of 336 university students which was used above in the FA and PCA. 33 cases were removed because they had missing responses to one or more statements. Therefore, the sample size for the CFA was 303.

The initial models proposed in the CFA were evaluated without including any correlations between error variables. This lack of specification is an acknowledged oversimplification of the models because errors are frequently correlated, but it is usually difficult to determine at the outset the error correlations that need to be accounted for in configuring original models (Meyers et al. 2016).

Model 1

Results from the initial model evaluation yielded pattern coefficients between the factors and measures that were all reasonably robust, ranging from .48 to .87. However, the TLI (.889), and the NFI (.886) showed values that suggested that the model was an inadequate fit with the data.

Figure 7: CFA Model 1 for Motivation Measures

Table 18: Model Fit Indexes Summary for Model 1 of Motivation Measures

Absolute Indexes	Relative Indexes	Parsimonious Indexes	Model Comparison Indexes

Test	Target Value	Actual Value	Test	Target Value	Actual Value	Test	Target Value	Actual Value	Test	Target Value	Actual Value
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.915**	AGFI	≥ .90	**NONE**	AIC	Lower	**256.760**
X^2/df	≤ 2.00**	**3.50**	NFI	≥ .95*	**.886**	PGFI	> .50	**NONE**	BCC	Lower	**260.269**
GFI	≥ .95*	**NONE**	IFI	≥ .95*	**.915**	PNFI	> .50	**.684**	BIC	Lower	**NONE**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.889**				ECVI	Lower	**.850**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.091**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Because Model 1 was an inadequate fit with the data, an assessment was made to identify reasonable modifications that could be made to establish a better fitting model (Meyers et al. 2018: 543). This involved examining the modification indexes to identify if the addition of some correlations between error variables would improve the model fit (Meyers et al. 2016).

Model 2

An examination of the modification indices suggested that the addition of correlations between several pairs of errors would improve the model fit. However, only five of the suggested correlation paths were between errors within measures of the same construct:

1) e7 (associated with EM5) and e8 (associated with EM7);
2) e6 (associated with EM1) and e8 (associated with EM7);
3) e2 (associated with IM5) and e4 (associated with IM3);
4) e2 (associated with IM5) and e3 (associated with IM2);
5) e1 (associated with IM1) and e4 (associated with IM3).

Because all of these pairs of measures were designed to measure the same construct and might have more in common with each other beyond their shared factor variance, it was reasonable to account for those correlations in specifying Model 2 (Meyers et al. 2016).

Figure 8: CFA Model 2 for Motivation Measures

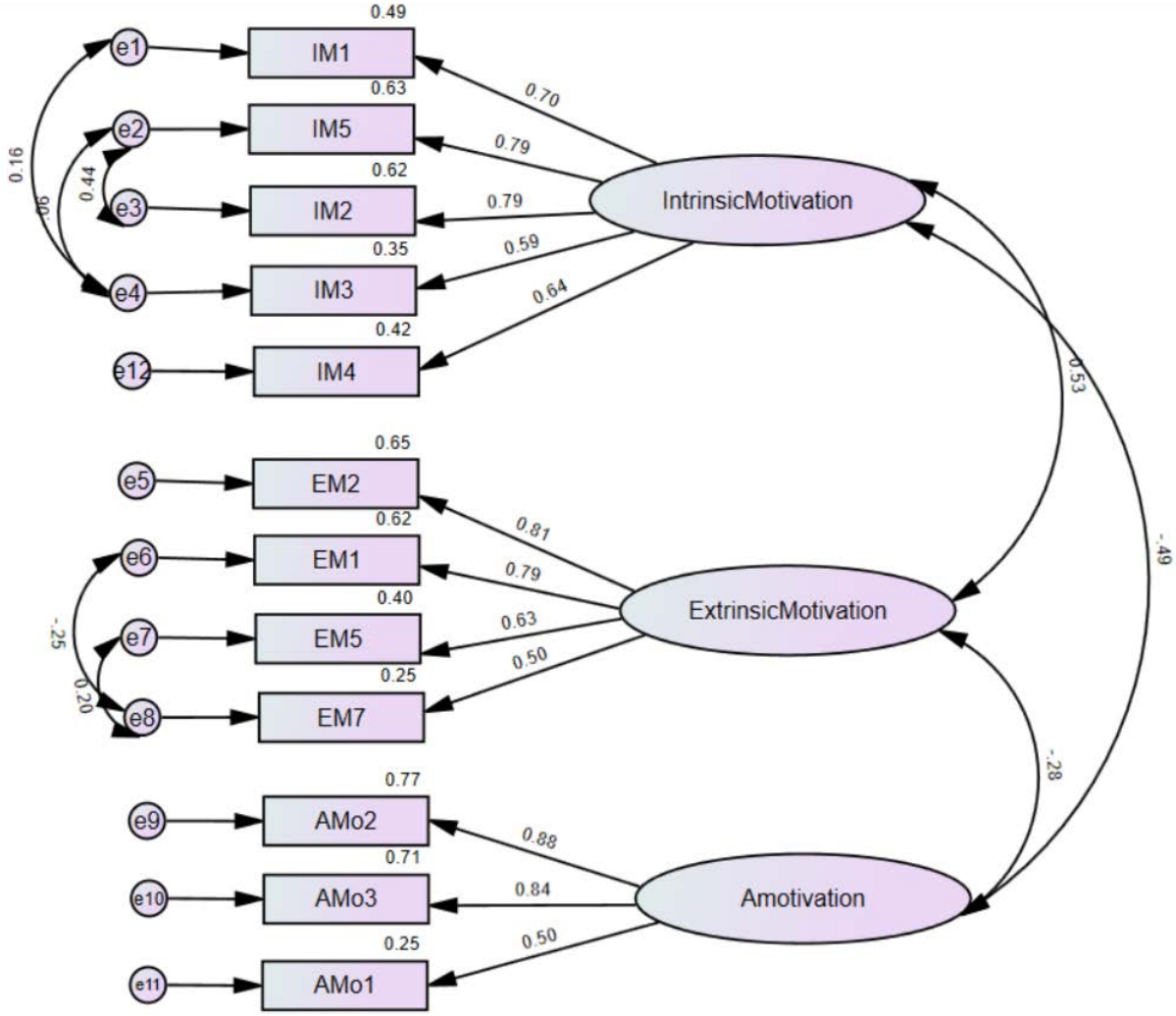


Table 19: Model Fit Indexes Summary for Model 2 of Motivation Measures

Absolute Indexes			**Relative Indexes**			**Parsimonious Indexes**			**Model Comparison Indexes**		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	*p* > .05	**.000**	CFI	≥ .95*	**.949**	AGFI	≥ .90	**NONE**	AIC	Lower	**210.712**
X^2/df	≤ 2.00**	**2.67-**	NFI	≥ .95*	**.921**	PGFI	> .50	**NONE**	BCC	Lower	**214.670**
GFI	≥ .95*	**NONE**	IFI	≥ .95*	**.949**	PNFI	> .50	**.642-**	BIC	Lower	**NONE**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.926**				ECVI	Lower	**.698**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.074-**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

As Figure 8 and Table 19 show, accounting for the error correlations between the error variables brought the NFI and TLI to within acceptable levels of fit. Furthermore, values for all indexes were improved, with the exception of the PNFI which decreased slightly

but was still above the acceptable threshold. Therefore, the empirical data in this thesis provide evidence to support the following conclusions:

1) IM1, IM2, IM3, IM4, and IM5 can be considered valid and internally reliable indicators of Intrinsic Motivation.
2) EM1, EM2, EM5, and EM7 can be considered valid and internally reliable indicators of Extrinsic Motivation
3) AMo1, AMo2, and AMo3 can be considered valid and internally reliable indicators of Amotivation.

This evidence shows that research objective one of this thesis has been fully achieved, because this thesis has successfully created new valid and internally reliable quantitative measures of the three kinds of motivation described by Ryan and Deci (2018).

Now that the results assessing the validity and internal reliability of the motivation measures have been presented, the thesis will now move on to Part Three of the findings chapter, which will present a summary of the statistical analysis of relationships between the valid and internally reliable measures of reflexivity and motivations.

3.4 Findings Chapter Part Three: Analysis of Relationships Between Reflexivity and Motivations

The evidence in Part One and Part Two of the findings chapter revealed that this thesis has successfully created valid and internally reliable measures of two modes of reflexivity and three kinds of motivation. Part Three of the findings chapter will present a summary of the statistical analysis of relationships between the valid and internally reliable measures of reflexivity and motivations. This will address objective 3 of the thesis, which was to use new valid and internally reliable measures to test for statistically significant relationships between reflexivity and motivations.

3.4.1 Results of Assumptions Testing for Bivariate Analysis

In all cases where bivariate analysis was used, Q-Q Plots and Scatterplots were created to test whether the data met the assumptions of normality, homoscedasticity, and linearity. This revealed that although the data was approximately normal, it was not linear. Therefore, non-parametric tests were used for the bivariate analysis. The

output tables for the testing of assumptions are presented in Appendix 9, alongside the output tables for the bivariate analysis.

3.4.2 Results of Bivariate Analysis

Table 20 summarises the results of the bivariate analysis, which are discussed in the next chapter (section 5.4).

Table 20: Summary of Bivariate Analysis Results for Relationships Between Reflexivity and Motivations

Meta Reflexivity and Fractured Reflexivity	No significant relationship
Meta Reflexivity and Intrinsic Motivation**	The evidence in this thesis suggests that there is a statistically significant medium-strength positive relationship between meta reflexivity and intrinsic motivation. In other words, as the level of meta reflexivity increases, the level of intrinsic motivation also increases.
Meta Reflexivity and Extrinsic Motivation**	There is a statistically significant weak-strength positive relationship between meta reflexivity and extrinsic motivation. In other words, as the level of meta reflexivity increases, the level of extrinsic motivation also increases.
Meta Reflexivity and Amotivation**	The evidence in this thesis suggests that there is a statistically significant weak-strength negative relationship between meta reflexivity and amotivation. In other words, as the level of meta reflexivity increases, the level of amotivation decreases.
Fractured Reflexivity and Intrinsic Motivation	No significant relationship
Fractured Reflexivity and Extrinsic Motivation	No significant relationship
Fractured Reflexivity and Amotivation**	The evidence in this thesis suggests that there is a statistically significant weak-strength positive relationship between Fractured Reflexivity and Amotivation. In other words, as the level of fractured reflexivity increases, the level of amotivation increases.
** Indicates that the correlation is significant at the 0.01 level	

3.5 Conclusion of Findings Chapter

The Findings Chapter of this thesis has presented the Exploratory and Confirmatory Factor Analysis of the reflexivity and motivation measures. The Findings Chapter has also summarised the statistical analysis of relationships between the valid and

internally reliable measures of reflexivity and motivations. The evidence in this chapter has shown that this thesis has achieved its three objectives, notwithstanding that objective 1 was only partially achieved because of shortcomings with the measures of Communicative and Autonomous reflexivity, which are discussed in the next chapter. More specifically, the evidence in the Findings Chapter shows that:

1) This thesis has successfully created new valid and internally reliable quantitative measures of Meta and Fractured reflexivity.
2) This thesis has successfully created new valid and internally reliable quantitative measures of Intrinsic, Extrinsic, and Amotivation.
3) This thesis has successfully used new valid and internally reliable quantitative measures to test for statistically significant relationships between reflexivity and motivations.

We will now move onto a discussion of the empirical findings of this thesis and their implications.

Chapter 4: Discussion Chapter

4.1 Introduction

The discussion chapter is divided into four parts. Part One will discuss and evaluate the attempts to create new valid and internally reliable measures of reflexivity. Part Two will then discuss and evaluate the attempts to create new valid and internally reliable measures of motivation. Part Three will discuss the results of the tests for relationships between reflexivity and motivations. Finally, Part Four will explain how the empirical findings of this thesis contribute to student experience literature.

The aim of this thesis was to provide new ways to explain differences in the quality of student experiences. The literature review argued that this could be achieved via analysis of relationships between measures of reflexivity and measures of motivation (see section 1.3.5). More specifically, it was argued that if there are statistically significant relationships between different modes of reflexivity and different kinds of motivation, then it would follow that some of the differences in student experiences could be attributable to differences in the ways that students use reflexivity, given the relationships between human motivations and psychological wellbeing that have been identified in previous research (e.g., Froiland and Worrell, 2016; Di Domenico and Ryan, 2017; Ryan and Deci, 2018). Therefore, this thesis set out to fulfil its research aim via the following objectives:

1) Create new valid and internally reliable quantitative measures of the four modes of reflexivity identified and described by Archer (2003; 2007; 2012).
2) Create new valid and internally reliable quantitative measures of the three kinds of motivation described by Ryan and Deci (2018).
3) Use the new valid and internally reliable measures to test for statistically significant relationships between reflexivity and motivations.

The evidence presented in the findings chapter suggests that the research aim of the thesis was fulfilled, because objective 1 was partially achieved and objectives 2 and 3 were fully achieved. More specifically, objective 1 was partially achieved because three fractured reflexivity measures and six meta reflexivity measures reached acceptable validity and internal reliability thresholds. Moreover, objective two was fully achieved because five intrinsic motivation measures, four extrinsic motivation measures, and three amotivation measures reached acceptable validity and internal

reliability thresholds. Therefore, using the individual measures of each of those constructs, it was possible for this thesis to achieve objective 3 and make an original contribution to knowledge by identifying statistically significant relationships between reflexivity and motivations.

Objective 1 was only partially achieved because less than three measures of communicative reflexivity reached acceptable validity and reliability thresholds, and the same was true of the autonomous reflexivity measures. This meant that there were not enough measures of communicative or autonomous reflexivity to constitute a valid and reliable measurement scale of either underlying construct (Meyers et al. 2016: 441; Watkins, 2018: 222). Therefore, it was not possible to test for relationships between communicative reflexivity, autonomous reflexivity, and the three kinds of motivation.

Nonetheless, because objective 1 was partially achieved and objective 2 was fully achieved, it was possible to achieve objective 3 by testing for statistically significant relationships between reflexivity and motivations, using the valid and internally reliable measures for meta reflexivity, fractured reflexivity, intrinsic motivation, extrinsic motivation, and amotivation. The results of these tests for relationships will be discussed in Part Three of this chapter. Before that, Part One and Part Two of the chapter will discuss and evaluate the attempts made in this thesis to create new valid and internally reliable measures of reflexivity and motivations.

4.2 Discussion Chapter Part One: Evaluation of the Attempts to Create New Valid and Internally Reliable Measures of Reflexivity

4.2.1 Some clarifications before evaluating the effectiveness of the new reflexivity measures.

Before evaluating the success of the new reflexivity measures or attempting to explain any shortcomings of the new measures, it is worth reiterating what the new reflexivity measures created in this thesis were supposed to measure.

Archer (2008: 2) described the ICONI as “a thirteen item index assigning nearly all subjects unambiguously to a dominant mode of reflexivity.” Furthermore, when developing the ICONI, Archer’s (2008: 4) aim was “to discover if modes of reflexivity were measurable and, if so, to arrive at the smallest number of questions that discriminated effectively between practitioners of different modes of reflexivity.”

However, although the ICONI was designed to assign respondents unambiguously to a dominant mode, Archer clearly suggested that the modes were not mutually exclusive and that people could use each mode to some extent, even if they have a dominant mode. For example, Archer (2008: 4) explicitly stated that "it was never expected that subjects would score highly on one mode and zero on the others." Furthermore, Archer (2007: 330) also stated that the ICONI "should be capable of distinguishing 'strong' from 'weak' practitioners of each mode."

Therefore, this thesis argues that a) every person can use each mode of reflexivity to some extent in their daily lives, and b) it is always possible for any person to experience fractured reflexivity. As such, the purpose of the quantitative measures of reflexivity created in this thesis was twofold. Firstly, the measures were designed to indicate how frequently a person tends to use communicative, autonomous, and meta reflexivity. Secondly, the measures were designed to indicate how frequently a person tends to experience fractured reflexivity. This approach is predicated on the argument that, as a rule of thumb, the more frequently a person uses each mode of reflexivity, and the more frequently they experience fractured reflexivity, the higher their numerical responses should be for the corresponding measures of each mode.

Furthermore, although it did not matter in this thesis whether the student participants had a dominant mode of reflexivity or not, this thesis argues that a person's numerical responses to the measures of each mode could be taken as evidence of the extent to which it is justifiable to label them a 'dominant practitioner' of a particular mode (i.e., a communicative, autonomous, meta, or fractured *reflexive*). In other words, by indicating how frequently a respondent tends to use each mode of reflexivity and how frequently they tend to experience fractured reflexivity, the valid and internally reliable measures created in this thesis should, in principle, be able to serve as an indication of whether or not a person actually has a dominant mode, even though the measures were not used for that purpose in this thesis.

With those considerations in mind, it is reasonable to argue that valid and internally reliable quantitative measures of reflexivity can be worthwhile regardless of whether a person has a dominant mode or not. This is because it is *not* necessary for a person to have a dominant mode of reflexivity in order for a quantitative indication of how frequently they use each mode to be worthwhile. In other words, while the reflexivity measures in this thesis were used to indicate *how frequently a person tends to use each mode and how frequently they tend to experience fractured reflexivity*, there is

no obvious reason why the same measures could not also be used in future research to indicate *whether or not a person has a dominant mode*.

When it comes to assessing how effective the new measures of reflexivity were at indicating how frequently a person tends to use each mode and how frequently they tend to experience fractured reflexivity, an immediate problem is that there can be no objective measurement with which to compare the attempts with. Therefore, triangulation of methods would have been worthwhile, so that two or more kinds of data on reflexivity could have been compared. However, as explained in section 2.3.1, this was not possible due to the Covid-19 disruptions, which meant that qualitative interview data was not used in this thesis. Nonetheless, as was explained in sections 2.3.6, 2.3.7, 2.3.8, 2.3.9, and 2.3.10 – and as will be shown in the following sections – it is possible to use quantitative data alone to form judgements about whether the underlying modes of reflexivity were validly and reliably measured via the new measures created in this thesis.

4.2.2 What are the strengths of the new reflexivity measures that were created in this thesis?

The evidence in this thesis suggests that, of the seven new meta reflexivity measures that were created, the following six measures are valid and internally reliable enough to be used as indicators of how frequently people tend to use meta reflexivity:

- MR1: I reflect on my experiences so that I can try and help other people.
- MR2: I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.
- MR3: I try to live up to ethical ideals, even if it costs me to do so.
- MR4: When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.
- MR5: I think a lot about how to improve myself and society.
- MR6: When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.

Furthermore, the evidence in this thesis suggests that, of the six new fractured reflexivity measures that were created, the following three measures are valid and

internally reliable enough to be used as indicators of how frequently people tend to experience fractured reflexivity:

- FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed.
- FR2: Thinking rarely leads me to a purposeful plan of action and often makes things worse.
- FR5: I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.

These findings made it possible to test for statistically significant relationships between meta reflexivity, fractured reflexivity, and other constructs which can be validly and reliably measured, such as different kinds of motivations.

Another implication of these findings is that they provide further evidence for inferring not only that different modes of reflexivity exist, but that at least some of the modes are amenable to empirical inquiry via quantitative methods. This is because the evidence in this thesis suggests that meta reflexivity and fractured reflexivity have sufficiently distinct characteristics to be justifiably labelled as distinct modes, and that these characteristics can be used as quantitative measures of their corresponding mode.

Furthermore, the evidence presented in this thesis suggests that this thesis has not only successfully created new quantitative measures of meta reflexivity and fractured reflexivity, but that it also provides an evidence-based indication of the characteristics that qualitative researchers should look for when trying to detect modes of reflexivity via the interpretation of qualitative data. More specifically, qualitative researchers can use the valid and internally reliable quantitative measures of meta and fractured reflexivity as templates to guide the interpretation of qualitative data, such as interview responses. This approach can improve the validity and reliability of qualitative research insofar as it increases the likelihood that independent researchers will converge in their interpretations of which modes of reflexivity are manifest in a given qualitative dataset.

4.2.3 What are the limitations of the new reflexivity measures created in this thesis?

The evidence in this thesis suggests that the attempts to create new valid and internally reliable measures of communicative and autonomous reflexivity was unsuccessful. There are multiple possible explanations for these findings, each of which will now be discussed in turn over the coming subsections. Some of the possible explanations could apply to both the communicative reflexivity and autonomous reflexivity measures; however, because the analysis revealed that the issues with the communicative reflexivity measures were different to the issues with the autonomous reflexivity measures, and because communicative and autonomous reflexivity are very different modes of reflexivity from a theoretical perspective, it is possible that the explanations for the shortcomings of their respective measures could be different. Therefore, the explanations for each mode will be discussed separately where necessary, but not when a possible explanation could apply to both modes.

4.2.4 What were the shortcomings of the Communicative Reflexivity measures?

The shortcomings of the attempt to create new valid and internally reliable measures of communicative reflexivity appear to be attributable to both validity and internal reliability issues.

The validity issue was that in no cases did more than two communicative reflexivity measures load or ‘cluster together’ onto the same component or factor in the Exploratory Factor Analysis. In this respect, the closest this thesis came to creating valid measures of communicative reflexivity was in the rotated component matrix of the Principal Components Analysis. In this instance, two Communicative Reflexivity measures *positively* loaded onto a Component Two with two Autonomous Reflexivity measures that *negatively* loaded onto the same component. These measures were:

- CR1: Before making decisions, I like to check what other people think I should do.
- CR3: I usually trust the judgement of others more than my own.
- AR1: Being decisive comes easily to me.
- AR2: I know myself very well and am confident in my ability to be self-reliant.

Those results could have been promising, given that, in principle, communicative reflexivity and autonomous reflexivity are the opposite of one another insofar as autonomous reflexivity is where reflexivity remains internal and leads to a decision without consulting somebody else, whereas communicative reflexivity involves externalising reflexivity so that another person can be consulted before a decision is made. With those considerations in mind, it is possible that some positively-worded measures of autonomous reflexivity could be used as negatively-worded measures of communicative reflexivity. In which case, the results in this thesis could have been a sign that CR1, CR3, AR1, and AR2 were measuring a common mode of reflexivity. However, the internal reliability score of CR1, CR3, AR1, and AR2 was only .277, which was well below the acceptable threshold of .7, and the score could not be improved by deleting any individual measures. Therefore, this combination of measures could not be retained for further analysis, and the empirical evidence in this thesis corroborates the findings of Meriton (2016) who was unable to validate the quantitative measures of communicative reflexivity that were used in Archer's (2007) ICONI.

We will now consider some explanations of shortcomings of the communicative reflexivity measures.

4.2.5 Is there something about communicative reflexivity which means that quantitative measures cannot indicate how frequently people use it?

It is possible that communicative reflexivity and the characteristics of people who tend to use it frequently cannot be quickly and categorically indicated via quantitative measures. For example, communicative reflexivity involves directly consulting another person before making a decision, and one could go as far as to say that communicative reflexivity involves a sense of both *preferring* and *needing* to directly consult another person before making a decision. Therefore, it is possible that the more a person uses communicative reflexivity, the less likely they are to commit themselves to categorical responses (i.e., extreme scores) on Likert scales, no matter how accurately a given survey measure captures the characteristics of frequent users of communicative reflexivity. This could be because frequent users of communicative reflexivity will typically prefer to directly consult another person before making categorical decisions, but they are unable to directly consult other people when responding to a survey like the one used in this research.

Although those considerations are plausible, the measures of communicative reflexivity used in this thesis purposely provided opportunities for respondents to indicate whether or not they have a tendency to consult other people before making decisions. For example:

- CR1: “Before making decisions, I like to check what other people think I should do.”
- CR2: “I find that sharing things with other people is more effective than thinking them through alone.”
- CR3: “I usually trust the judgement of others more than my own”

Therefore, if we were to accept the conclusion that quantitative measures cannot indicate how frequently people use communicative reflexivity, we would have to accept that frequent users of communicative reflexivity are unlikely give categorical responses to quantitative measures, even when the measures are specifically designed to enable people to indicate that they are the kind of person who does not tend to make categorical decisions without talking to somebody else. If that is the case, it is possible that communicative reflexivity is only detectable via qualitative methods, such as interviews. This could be because it is only through qualitative methods that researchers can explore a person’s reflexivity at the necessary level of depth to detect communicative reflexivity. The same could also be the case with autonomous reflexivity, and this would present a potential challenge to Archer’s (2007) original intention to quantitatively measure communicative and autonomous reflexivity using the smallest possible number of questions.

However, there is at least one problem with the conclusion that communicative and/or autonomous reflexivity are only detectable via qualitative methods. Namely, the evidence in this thesis suggests that quantitative measures *can* provide valid and internally reliable indications of meta and fractured reflexivity. Therefore, if we were to accept the conclusion that it is only possible to indicate communicative and autonomous reflexivity via qualitative methods, we would need to explain why meta and fractured reflexivity *can* be indicated via quantitative measures whereas communicative and autonomous reflexivity *cannot* be.

This thesis argues that there is insufficient theoretical reason to conclude that meta and fractured reflexivity are different to communicative and autonomous reflexivity in

ways which mean that meta and fractured reflexivity *can* be indicated via quantitative measures whereas communicative and autonomous reflexivity *cannot* be. Furthermore, although the evidence in this thesis suggests that the new measures of communicative and autonomous reflexivity were not valid and internally reliable enough, this thesis provides no empirical evidence to explain why communicative and autonomous reflexivity should be less amenable to quantitative methods than meta and fractured reflexivity.

Therefore, despite the shortcomings of the measures created in this thesis – and despite the potential implications of the sample, which are discussed in section 4.2.9 – this thesis argues that it is still reasonable to think that quantitative measures *can* provide valid and internally reliable indications of communicative and autonomous reflexivity. However, better measures are needed than the measures of communicative and autonomous reflexivity that were created in this thesis (see section 4.2.10 below).

With that in mind, it is also worth pointing out that even if we accepted the conclusion that quantitative measures *cannot* provide valid and internally reliable indications of how frequently people use communicative and autonomous reflexivity, this conclusion would have implications for qualitative research because it would raise questions about the legitimacy of using qualitative methods to identify examples of communicative or autonomous reflexivity in the absence of valid and internally reliable quantitative measures of those modes. Those implications will now be discussed.

4.2.6 What would be the implications for qualitative research if we were to conclude that quantitative measures cannot provide valid and internally reliable indications of how frequently people use communicative and autonomous reflexivity?

If a researcher wishes to use qualitative methods like interviews to detect the existence of different modes of reflexivity – let alone to indicate how frequently people use each mode – it is necessary for the researcher to have at least an implicit sense of how one mode of reflexivity is different to another mode of reflexivity. Without an implicit sense of how one mode of reflexivity is different to another, there would presumably be no grounds for thinking that reflexivity is *not* a homogenous process and that there are distinct underlying phenomena which we can refer to by using a phrase like ‘modes of reflexivity’.

The question is, what are the empirical grounds for asserting that a set of individual characteristics are consistently associated with each another enough for them to be

said to be the most typical characteristics of one mode of reflexivity and not another mode of reflexivity? This thesis argues that, if we do not have a set of valid and internally reliable quantitative measures for each mode, the empirical grounds are less robust for asserting that a given set of characteristics are all consistently associated with one mode of reflexivity and not another mode of reflexivity.

Given that Archer (2003; 2007; 2011) identified different modes of reflexivity via interviews and described the differences between each mode in reference to interview data, one could reasonably argue that Archer's qualitative evidence alone does not provide sufficiently robust grounds for making generalisations about which characteristics are most consistently associated with each mode of reflexivity. Such an argument is strengthened by the fact that there appear to be issues with Archer's (2007) quantitative findings, which were identified by Meriton (2016) and explained in section 1.3.4.

It is possible that the associated characteristics of communicative and autonomous reflexivity are simply not distinctive enough to be quantitatively measured. More specifically, it is possible that the characteristics of people who tend to use communicative or autonomous reflexivity frequently are not distinctive enough to be made explicit and distilled into statements that can serve as valid and internally reliable quantitative measures. If this is the case, it would suggest that qualitative methods are the only possible way to indicate how frequently people use communicative and autonomous reflexivity. However, in addition to the points raised in the last subsection (4.2.6), this conclusion would raise questions about how researchers can justify which associated characteristics should be used to guide the interpretation of qualitative data when the task is to identify examples of communicative or autonomous reflexivity. In other words, without sets of associated characteristics that are distinctive enough to be made explicit, it is not only impossible to create individual quantitative measures, but it is also harder to justify which characteristics qualitative researchers should look for when using qualitative methods like interviews to detect examples of communicative or autonomous reflexivity.

Furthermore, unless we use quantitative analysis to test whether sets of associated characteristics can achieve acceptable levels of validity and internal reliability, it is harder to assert that an individual set of characteristics actually correlate with one another enough to justify the conclusion that they are associated with a single mode

of reflexivity consistently enough to be considered the typical characteristics of that mode.

Therefore, this thesis argues that, moving forward, quantitative analysis of the kind presented in the findings section of this thesis is needed to test whether a set of hypothetically related characteristics correlate sufficiently enough for us to reasonably conclude that each of those characteristics are indeed associated with a common underlying mode of reflexivity and not another mode or no mode at all. In this sense, by enabling researchers to identify whether sets of explicit characteristics are 'distinct-enough' from other sets of explicit characteristics, quantitative methods can strengthen the grounds upon which future empirical research on modes of reflexivity is conducted. Moreover, by enabling us to measure correlations between individual measures, quantitative measures can give us a stronger idea of what the most typical associated characteristics of each mode of reflexivity are. These arguments are clarified and developed in the next subsection.

4.2.7 Why do researchers need sets of explicit characteristics of each mode of reflexivity that can be shown via quantitative methods to be 'distinct-enough' from one another?

In the study where she identified different modes of reflexivity, Archer (2003: 157) stated that because of the nature of the topic being investigated and the feasibility of conducting and analysing in-depth interviews, "twenty subjects (or approximately 500 pages of transcript) was the most [that] one person could handle". Nonetheless, the findings from those twenty interviews were enough for Archer (2003: 165) to suggest that "there are such different modes of reflexivity as to warrant distinguishing between 'communicative reflexives', 'autonomous reflexives' and 'meta-reflexives', [and] that 'fractured reflexivity' frequently results from an 'impediment' to, or a 'displacement' from, one of the above modes."

Therefore, it was through qualitative methods that Archer (2003) identified different modes of reflexivity, and it was on the basis of qualitative evidence that Archer described what made each mode distinct. It was only later that Archer (2008: 4) used quantitative methods to "discover if modes of reflexivity were measurable and, if so, to arrive at the smallest number of questions that discriminated effectively between practitioners of different modes of reflexivity." This culminated in the 13-item ICONI,

which was “principally used to *identify* clear practitioners of a dominant mode of reflexivity for in-depth interview” (Archer, 2008: 4).

As explained in section 1.3.4 of this thesis, issues with Archer’s (2007) quantitative findings were identified by Meriton (2016), who approached validation of Archer’s (2007) measurement models in “an exhaustive manner as possible following the most current procedures in contemporary measurement models literature” (Meriton, 2016: 142). The results of Meriton’s (2016: 169) statistical analysis, “which were based on a relatively large and heterogeneous sample of the UK working population, pose serious questions to the wisdom of some of the claims made by Archer.”

More specifically, Meriton’s (2016: 169) results suggested that “communicative reflexivity failed to show internal reliability, [which] can potentially lead to the conclusion that any interpretations of results that rely on a classification based on the [ICONI] items [for] communicative reflexivity are potentially questionable.” Furthermore, Meriton (2016: 169) concluded that “interpretations and statistical inferences of any kind, based on the autonomous reflexivity construct on the basis of ‘average scores,’ are potentially misleading.”

It was because of the issues raised by Meriton (2016) that new measures of each mode of reflexivity were created in this thesis. However, the evidence in this thesis corroborates Meriton’s (2016) findings because the measures of communicative reflexivity and autonomous reflexivity that were created in this thesis failed to achieve acceptable validity and internal reliability thresholds. This does not necessitate the conclusion that communicative or autonomous reflexivity do not exist at the levels of the *actual* or the *real* (see section 2.2.2.), but it suggests that the *empirical* quantitative measures used in this thesis were not effective enough at capturing the most typical characteristics of communicative and autonomous reflexivity.

The measures of reflexivity that were created in this thesis were based on the empirical evidence in Archer’s (2003; 2007; 2011) key studies, which are the foundational source from which qualitative researchers can derive an understanding of how one mode of reflexivity is different to another and what the most typical characteristics associated with each mode are. Therefore, the evidence in this thesis raises questions about which characteristics can be justifiably used in qualitative research to identify examples of communicative and autonomous reflexivity.

Whether the aim is to identify dominant modes, indicate how frequently people use each mode, or merely to detect the existence of distinct modes in a qualitative dataset,

this thesis argues that researchers need sets of associated characteristics for each mode of reflexivity that can each be shown to be 'distinct-enough' from the other sets of characteristics for the other modes. This raises the question of what constitutes a 'distinct-enough' set of characteristics?

This thesis argues that a set of characteristics can be considered 'distinct-enough' if the set of characteristics can be distilled into individual statements that can be shown via quantitative analysis to be correlated enough to be validly and reliably measuring the same underlying construct and not another underlying construct or no underlying construct at all. To be clear: a mode of reflexivity is an example of an underlying construct.

The findings in this thesis suggest that the sets of measures for communicative reflexivity and autonomous reflexivity that were created in this thesis are not 'distinct-enough' in the sense described in the previous paragraph. This suggests that although the communicative and autonomous reflexivity measures created in this thesis were derived from Archer's (203; 2007; 2011) foundational texts, the empirical evidence in this thesis does not warrant the conclusion that the characteristics that were distilled into those measures are the most typical characteristics of people who tend to use communicative or autonomous reflexivity frequently.

Nonetheless, unless one is willing to reject Archer's (2003, 2007, 2011) evidence and/or argue that there are no empirical or logical grounds for believing in the existence of patterns of decision-making that are distinct-enough to be justifiably labelled as 'communicative reflexivity' and 'autonomous reflexivity', then it is worthwhile for researchers to make further attempts identify 'distinct-enough' sets of explicit characteristics that measure communicative and autonomous reflexivity more effectively than the measures created in this thesis. Therefore, this thesis will now consider other possible explanations of why the measures of communicative and autonomous reflexivity created in this thesis failed to achieve acceptable levels of validity and internal reliability.

4.2.8 Could the issues with the communicative and autonomous reflexivity measures in this thesis be attributable to the fact that the measures were not context-specific?

Dyke et al. (2012: 836) argued that researchers should be cautious about labelling people a communicative, autonomous, meta, or fractured 'reflexive' because it

"suggests a fixed predisposition or type." Instead, Dyke et al. (2012: 836) advocate a more dynamic understanding of reflexivity whereby individuals can use different modes of reflexivity at different points in their lives and in different contexts. Dyke et al. (2012: 836) also suggest that "describing individuals as types of 'reflexive' is misleading because it fails to capture the ability of individuals to adapt their reflexivity as their circumstances and situations change." For these reasons, Dyke et al. (2012) state a preference for a more fluid and dynamic understanding of reflexivity "where distinctive modes of reflexivity are not seen as static properties of individuals, [but] as strategies or capabilities people might use or develop in different circumstances."

The reflexivity measures in this thesis were worded in non-context-specific ways so that they could easily be used by researchers in other fields if there was evidence that the measures were valid and internally reliable. However, if Dyke et al. (2012) are right to suggest that it is possible that the extent to which people use each mode of reflexivity differs in each relatively distinct area of each person's life (e.g., family-life, work-life, social-life etc.), then it is possible that the shortcomings of the communicative and autonomous reflexivity measures in this thesis are attributable to the fact that the measures were not context-specific.

The use of non-context-specific measures in this thesis was not based on an assumption that every person has a *dominant* mode of reflexivity. However, in hindsight, the choice made in this thesis to use non-context-specific measures implies that people use each mode of reflexivity to a *consistent* extent in each area of their lives. A problem with this is that some students might use a mode of reflexivity frequently at university but not in other areas of their lives, such as in their family and social life or in their employment. If this is the case and people use each mode of reflexivity to a different extent in each area of their lives, then the non-context-specific measures used in this thesis could have made it difficult for students to indicate how frequently they use communicative and autonomous reflexivity. More specifically, the non-context-specific measures could have caused students to respond more neutrally to the communicative and autonomous reflexivity measures to reflect the fact that they use these modes to different extents in each area of their lives.

There is no obvious reason why the use of non-context-specific measures should create issues with the measurement of communicative and autonomous reflexivity but not with the measurement of meta and fractured reflexivity. Nonetheless, given the shortcomings of the communicative and autonomous reflexivity measures in this thesis

and the considerations discussed in the previous paragraphs, we can reasonably conclude that context-specific measures could indicate communicative and autonomous reflexivity more validly and reliably than the non-context-specific measures created in this thesis. This conclusion also supports the arguments of Dyke et al. (2012), who suggest that the ways people use reflexivity are not fixed and can differ in each area of a person's life.

Importantly, the conclusion that context-specific measures might be more effective at measuring communicative and autonomous reflexivity does not negate the possibility that some people do indeed have a dominant mode of reflexivity; nor does this conclusion negate the possibility that some people might use reflexivity in consistent ways across all areas of their lives, even if they do not have a dominant mode. Nonetheless, this conclusion does at least accept that the issues with the communicative and autonomous reflexivity measures in this thesis could be attributable to the fact that the measures were not context-specific.

4.2.9 Could the issues with the communicative and autonomous reflexivity measures in this thesis be attributable to sampling issues?

It is possible that not enough people among the sample in this thesis used communicative or autonomous reflexivity frequently enough for the individual sets of communicative reflexivity and autonomous reflexivity measures to correlate consistently enough in the Exploratory Factor Analysis. There is no way to test if this explanation is true because no other data from the participants was collected; but the possibility of it being true means that another sample could produce different results that would show the communicative and autonomous measures in this thesis to be more valid and internally reliable. More specifically, a sample containing more people who use communicative or autonomous reflexivity to a relatively greater extent might produce results that would suggest that the communicative and autonomous measures in this these are indeed valid and internally reliable.

However, we should be cautious about accepting that conclusion. This is because *low* levels of communicative and autonomous reflexivity among the sample in this thesis should have led to patterns in the data that would have been equally as distinctive as the patterns we would expect to see if there were *high* levels of communicative and autonomous reflexivity among the sample. More specifically, the patterns caused by low levels of communicative and autonomous reflexivity among

the sample should have been the opposite of the patterns we would have expected to see if there had been high levels of communicative and autonomous reflexivity, but both patterns should have been equally as noticeable in the Exploratory Factor Analysis results.

Another possibility is that there were enough students in the sample who *did* use communicative or autonomous reflexivity frequently, but these students just *did not* identify with the content of the communicative and autonomous reflexivity measures enough to register consistent scores for them. If that is true, it would suggest that the communicative and autonomous reflexivity measures created in this thesis did not sufficiently encapsulate the most typical characteristics of people who tend to use communicative or autonomous reflexivity to a relatively great extent. This possibility will now be discussed.

4.2.10 Could it be that the measures created in this thesis did not sufficiently encapsulate the most typical characteristics of people who tend to use communicative or autonomous reflexivity frequently?

With the exceptions of two communicative reflexivity measures (CR1 and CR3), each communicative reflexivity measure loaded onto a different component or factor. This evidence suggests that there were validity issues with the communicative reflexivity measures created in this thesis, because *if* the communicative reflexivity measures were measuring anything at all, they do not appear to have been measuring the common underlying construct that they were supposed to have measured.

On the other hand, as will be discussed in the next section (4.2.11), there were two instances where three autonomous reflexivity measures ‘clustered together’ in the Exploratory Factor Analysis. Firstly, AR1, AR2, and AR4 loaded onto Factor 2. Secondly, AR2, AR6, and AR4 loaded onto Component 6. However, despite some signs of validity, neither of these sets of autonomous reflexivity measures ‘clustered together’ in both the Factor Analysis *and* Principal Components Analysis. Moreover, in both cases, further analysis revealed that, although each of these clusters showed some signs of measuring a common construct, neither cluster achieved a sufficient internal reliability score.

Therefore, if it is possible for quantitative measures to validly and reliably indicate how frequently people use communicative and autonomous reflexivity, then the

evidence in this thesis suggests that future researchers will need to do one of two things.

Firstly, researchers will need to further refine the communicative and autonomous reflexivity measures created in this thesis. This could involve making subtle changes to some of the wording of the communicative and autonomous reflexivity measures or completely rephrasing them.

Alternatively, researchers will need to create more new measures which do a better job than the measures in this thesis of encapsulating the characteristics of people who frequently use communicative or autonomous reflexivity. If more new measures are to be created, then the researchers doing this work will need to consider why the measures created in this thesis did not encapsulate the most typical characteristics of people who frequently use communicative or autonomous reflexivity, even though those measures were derived from Archer's (2003; 2007; 2011) foundational texts and related empirical research (e.g., Baker 2018; 2019). Researchers must then consider if and how, given the efforts made in this thesis, it is possible to derive better measures of communicative and autonomous reflexivity from existing empirical evidence.

4.2.11 Further Autonomous Reflexivity Considerations

Before we conclude Part One of the Discussion Chapter, it is necessary to discuss some further considerations about autonomous reflexivity that might help to illuminate why the autonomous reflexivity measures in this thesis did not achieve acceptable levels of validity and internally reliability.

The Exploratory Factor Analysis in this thesis (sections 3.2.4 and 3.2.5) shows that two different sets of autonomous reflexivity measures clustered together with acceptable loading scores. Firstly, the following three autonomous reflexivity measures clustered together onto Factor 2 with acceptable loading scores:

- AR1: Being decisive comes easily to me.
- AR2: I know myself very well and am confident in my ability to be self-reliant.
- AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.

Secondly, the following three autonomous reflexivity measures clustered together onto Component 6 with acceptable loading scores:

- AR2: I know myself very well and am confident in my ability to be self-reliant.

- AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.
- AR6: Building an independent life for myself is more important to me than staying where my family and close friends are.

Because the two sets of measures above clustered together with acceptable loading scores, the evidence suggested that one or both of these sets of three could be valid measures of autonomous reflexivity. However, despite the initial signs of validity, neither of these sets of measures 'clustered' together in both the Factor Analysis *and* Principal Components Analysis. Moreover, the internal reliability score was only .552 for the first cluster (AR1, AR2, AR4) and the internal reliability score was only .513 for the second cluster (AR2, AR4, AR6) (see Appendix 10). Therefore, although those two sets showed some signs of validly measuring autonomous reflexivity, the internal reliability score for each set was "unacceptable" according to Meyers et al. (2016: 443). This suggested that no combination of autonomous reflexivity measures met the requirements for being included in the subsequent Confirmatory Factor Analysis.

However, as will be discussed in the next section, Meriton (2016: 115) suggested that internally reliability scores are less important if autonomous reflexivity is treated as a *formative* construct rather than a *reflective* construct. This is because "the correlations among indicators within a formative construct do not need to be high [and, therefore] the Cronbach alpha value [i.e., the internal reliability score] is not expected to be high" (2016: 115). Furthermore, Petter et al. (2007: 641) argued that "reliability in the form of high internal consistency of indicators is actually undesirable for formative constructs." The reason for this is that if measures are highly correlated, it may suggest that they are each tapping into the same aspect of the underlying construct and are, in effect, measuring the same thing. This would be undesirable with measures of formative constructs, for reasons that will become apparent in the next sub-section which explains the differences between formative and reflective constructs.

4.2.12 What are formative and reflective constructs and why are the differences important?

Meriton (2016: 96) described two kinds of models that can be used to model the relationship between a construct (e.g., a mode of reflexivity) and the individual

measures of a construct. These two models are *reflective* measurement models and *formative* measurement models.

When the aim is to measure an underlying and unobservable construct, the individual measures should be referred to as “reflective indicators or effect indicators” (Meriton, 2016: 96). In other words, if the assumption is that an underlying construct exists independently of any measures of it, the construct should be modelled as a *reflective* construct (Meriton, 2016: 98). With reflective measurement models, the idea is that changes in the construct should be reflected by changes in the measures of the construct. That is to say, the assumption is that the measures of the underlying construct do not cause changes in the underlying construct but are themselves manifestations of the underlying construct. For example, high scores on IQ tests could be seen as manifestations of a person’s underlying general intelligence.

On the other hand, it is possible to combine multiple individual measures to *form* a construct that does not, ontologically speaking, have an underlying existence. This is known as a formative measurement model. In the case of formative measurement models, the individual measures do not *reflect* the construct, but they actually *form* it (Meriton, 2016: 98). According to Meriton (2016: 98) a typical example of a formative construct is socioeconomic status, which is not an underlying construct but is *formed* by a combination of variables that can be measured, such as education, income, occupation, and residence. With formative measurement models, we assume that changes in the individual measures cause changes in the construct; more specifically, the measures literally constitute the construct (Meriton, 2016: 98).

4.2.13 Why did Meriton (2016) treat autonomous reflexivity as a formative construct?

Meriton (2016: 168) stated that, although “Archer is rather sketchy when it comes to assumptions about the nature of the measurement model of the different modes, it can nevertheless be inferred from Archer (2007a: 355) that she treats all the four modes as reflective constructs from her repeated use of the term ‘average scores’ when referring to the four constructs.”

Although Archer (2007) appeared to treat autonomous reflexivity as a reflective construct, Meriton (2016: 91) argued that “the factor structure of the ICONI as published in [Archer, 2007] raised doubts [about] the nature of the autonomous reflexivity measurement model [because] it did not appear to possess a conventional

reflective type structure." In other words, Meriton (2016: 91) stated that "the factor loadings provided by Archer show that the items that were supposed to measure autonomous reflexivity did not load consistently on any of the four factors". This evidence *could* suggest that Archer's (2007) autonomous reflexivity measures simply did not measure what they were supposed to measure; however, Meriton (2016: 91) suspected that this evidence was a sign "that the autonomous measurement model could be formative rather than conventionally reflective in nature."

Therefore, Meriton (2016: 92) decided that "it would be wise to err on the side of prudence [in his research] and to collect additional data that could be used to validate autonomous reflexivity as a formative construct". This involved creating nine 1-item measures (see Figure 9 below) that were "guided by Archer's instructions" and were "designed to tap into the different areas of people's lives that they care about deeply" (Meriton, 2016: 92). According to Meriton (2016: 92), "Archer referred to these measures as ultimate concerns" and Meriton (2016: 92) felt that some of those concerns could be used as measures to validate autonomous reflexivity as a formative construct. As such, the respondents in Meriton's (2016) study were asked to rate the 9 concerns on the Likert scales in Figure 9.

Figure 9: List of measures used by Meriton (2016) to validate autonomous reflexivity as a formative construct. [Copied from Meriton, 2016: 257]

3.1 In general, what are the most important areas of your life now - those that you care about deeply? (Please choose from the following areas, 7 being the most important and 1 the least).

	1	2	3	4	5	6	7
A. Work/career	❍	❍	❍	❍	❍	❍	❍
B. Performative achievements (e.g. sports, music, etc.)	❍	❍	❍	❍	❍	❍	❍
C. Financial Success	❍	❍	❍	❍	❍	❍	❍
D. Interpersonal relationships with family and friends.	❍	❍	❍	❍	❍	❍	❍
C. Pro-social activities such as caring for others, campaigning for good causes, etc.	❍	❍	❍	❍	❍	❍	❍
D. Spirituality	❍	❍	❍	❍	❍	❍	❍
E. Resolving problems	❍	❍	❍	❍	❍	❍	❍
F. Establishing a better way of life	❍	❍	❍	❍	❍	❍	❍
G. Overcoming present difficulties	❍	❍	❍	❍	❍	❍	❍

4.2.14 What did Meriton's (2016) findings lead him to conclude?

Meriton's (2016: 142) attempt to validate the measurement models for each mode of reflexivity "was approached in as an exhaustive manner as possible following the most current procedures in contemporary measurement models literature." The "plethora of tests" that Meriton (2016: 142) conducted largely confirmed his hypotheses about the nature of the different measurement models employed in his study. Namely, "autonomous reflexivity was found to support a formative model [whereas] both the fractured and meta-reflexivity measurement models turned out to be consistent with a reflective type of structure" (Meriton, 2016: 142). Unfortunately, communicative reflexivity was dropped from Meriton's study because the internal reliability of the measures of it (taken from Archer's ICONI) was unacceptable.

4.2.15 What is the stance of this thesis regarding whether modes of reflexivity should be treated as formative or reflective constructs?

This thesis set out to measure how frequently students tend to use each mode of reflexivity, and how frequently they tend to experience fractured reflexivity. Measurement of this kind was attempted via what I concluded were the most typical characteristics of the people who Archer (2003; 2007; 2011) described as communicative, autonomous, meta, and fractured 'reflexives'. More specifically, taking one mode at a time, I tried to identify the most typical characteristics of people who were frequent users of that mode according to Archer's (2003; 2007; 2011) empirical evidence. I then distilled the associated characteristics of frequent users of each mode into sets of survey measures for each mode.

This approach was underpinned by the assumption that the more a person tends to use a particular mode of reflexivity, the higher they should score for the corresponding measures of that mode. Therefore, although it had not been explicitly considered at the outset, this thesis treated each mode of reflexivity as a *reflective* construct. The main reason for this is that, ultimately, although it does not seem completely accurate to assume that a mode of reflexivity *causes* changes in the measures of it, it seems even less accurate to assume that any mode of reflexivity is merely *formed* by other variables and has no underlying existence.

The evidence in this thesis provides no reason to conclude that autonomous reflexivity should be treated as a formative construct. On the contrary, although the

measures of autonomous reflexivity created in this thesis were not sufficiently internally reliable, there are multiple reasons why the evidence in this thesis supports the conclusion that autonomous reflexivity can still be validated as a reflective construct in future research.

Firstly, as stated above in section 4.2.11, there were two instances where three autonomous reflexivity measures 'clustered together' in the Exploratory Factor Analysis. More specifically, AR1, AR2, and AR4 loaded onto Factor 2, whereas AR2, AR6, and AR4 loaded onto Component 6. The fact that two sets of AR measures clustered together is a positive sign because it suggests that these measures were measuring what they were supposed to measure, even though the internal reliability scores suggest that the measures did not measure what they were supposed to measure consistently enough according to the conventions in quantitative research (Meyers et al. 2012: 443).

Secondly, further analysis in this thesis revealed that if AR1, AR2, and AR4 are added to the final Confirmatory Factor Analysis model for reflexivity that was presented in section 3.2.7, the model fit indexes are almost all acceptable, except for the NFI, TLI, and AGFI indexes. Moreover, if AR2, AR4, and AR6 are included, the model fit indexes are even better, with only the NFI and TLI indexes being below acceptable levels. The results of the further Confirmatory Factor Analysis are presented in Appendix 11.

However, despite the results from the further Confirmatory Factor Analysis, it was stated in section 4.2.11 of this thesis that the two sets of autonomous reflexivity measures each clustered together in only one instance, and the internal reliability scores for each set were "unacceptable" according to Meyers et al. (2016: 443). Therefore, this thesis decided to err on the side of caution by concluding that none of the autonomous reflexivity measures were sufficiently internally reliable. Nevertheless, the empirical evidence in this thesis is encouraging enough to argue that researchers should do more work with AR1, AR2, AR4, and AR6. That work could involve using a new sample to further test the validity and internal reliability of those measures.

Furthermore, this thesis provides more encouraging evidence from some further bivariate analysis that was conducted to see if there was any evidence to tentatively suggest that there might be significant relationships between autonomous reflexivity and intrinsic, extrinsic, and amotivation. More specifically, further bivariate analysis (presented in Appendix 10) revealed that the AR measures were significantly related

to intrinsic motivation and extrinsic motivation. In other words, the evidence suggests that the higher a student scores on autonomous reflexivity measures, the more likely a student is to be intrinsically and extrinsically motivated. Conversely, further bivariate analysis suggested that there is a significant negative relationship between autonomous reflexivity and amotivation. In other words, this thesis provides some very weak evidence to suggest that the more frequently a student uses autonomous reflexivity, the less likely they are to be amotivated.

It is also worth noting that the further bivariate analysis provided evidence to suggest that there is a significant positive relationship between autonomous reflexivity and meta reflexivity, whereas there was a significant negative relationship between autonomous reflexivity and fractured reflexivity. In other words, there is some very weak evidence (presented in Appendix 10) to suggest that the more frequently students use autonomous reflexivity, the more likely they are to use meta reflexivity and the less likely they are to experience fractured reflexivity.

Whilst these findings are interesting and provide further justification for more research, it is important to reiterate that the internal reliability scores (presented in Appendix 10) for the autonomous reflexivity measures were all unacceptable (Meyers et al. 2016). This means that the results of the post-hoc bivariate analysis where AR1, AR2, AR4, and AR6 were used are purely speculative and further research is needed before any firm conclusions can be made. This is why these post-hoc results were not presented in the findings section of this thesis. Nonetheless, those results provide further reason to assert that, if a choice must be made about whether the modes of reflexivity should be treated as formative or reflective constructs, this thesis argues that all three modes of reflexivity and fractured reflexivity should be treated as reflective constructs, as they were in this thesis.

4.2.16 Summary of Discussion Chapter Part One

Part One of the Discussion Chapter has discussed the reflexivity findings and considered multiple explanations of why the new measures of communicative and autonomous reflexivity did not achieve acceptable levels of validity and internal reliability. After considering those explanations, this thesis argues that there is no theoretical reason to justify the conclusion that quantitative measures cannot provide valid and internally reliable indications of how frequently people use communicative and autonomous reflexivity. Moreover, the empirical evidence in this thesis is also

insufficient to justify that conclusion, especially when we consider the fact that this thesis has been successful in creating new valid and internally reliable measures of meta and fractured reflexivity. Therefore, this thesis argues that it is still reasonable to think that it is possible to measure communicative and autonomous reflexivity via quantitative methods; however, further work is needed to develop measures of communicative and autonomous reflexivity that are more valid and internally reliable than the measures of communicative and autonomous reflexivity that were created in this thesis. Therefore, future researchers should either develop the communicative and autonomous reflexivity measures created in this thesis or create new measures for those modes. Either way, this thesis argues that all four modes of reflexivity should be treated as reflective constructs, because of the reasons that were articulated in the previous subsection (4.2.15).

Now that Part One of this chapter has discussed and evaluated the attempts to create new valid and internally reliable measures of reflexivity, we will now move on to discuss and evaluate the attempts to create new valid and internally reliable measures of motivations.

4.3 Discussion Chapter Part Two: Evaluation of the Attempts to Create New Valid and Internally Reliable Measures of Motivations

Part Two of this chapter will discuss and evaluate the attempts to create new valid and internally reliable measures of motivation. Part Two is much shorter than Part One because, despite some minor shortcomings with some intrinsic and extrinsic motivation measures, the evidence suggests that this thesis has successfully developed some new valid and internally reliable measures of intrinsic, extrinsic, and amotivation. These findings will now be discussed, taking one kind of motivation at a time.

4.3.1 Intrinsic Motivation Measures

The evidence in this thesis suggests that, of the seven new measures of intrinsic motivation that were developed in this thesis, five of them can be considered valid and internally reliable measures of intrinsic motivation. Those five measures are:

- IM1: I come to university because I genuinely love to learn.
- IM2: I come to university because I am fascinated by my subject and I want to spend time studying it.

- IM3: I come to university because I really enjoy the challenge.
- IM4: I come to university because it gives me opportunities to do things that interest me.
- IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it.

There were issues with two intrinsic motivation measures, each of which will now be discussed in turn. Those two measures are:

- IM6: I come to university because I really want to grow as a person.
- IM7: I come to university because I really enjoy meeting new people and socialising.

IM6

As section 3.3.3 shows, IM6 loaded onto Factor 4 with EM3 and EM4, and the internal reliability score for this cluster of measures was .711. Section 3.3.4 shows that IM6 also loaded onto Component 5 with EM3, EM4, and EM7, and the internal reliability score for this cluster was .726.

However, EM3, EM4, and EM7 were all designed to measure extrinsic motivation, and, as the reader can see from the list below, there was no obvious theoretical relationship between EM3, EM4, EM7 and IM6:

- EM3: I come to university because I want to show that I am capable of completing a degree
- EM4: I come to university because success here will make me feel much better about myself
- EM7: I come to university because it will make me more employable
- IM6: I come to university because I really want to grow as a person

Therefore, because there appears to be no obvious theoretical relationship between IM6 and EM3, EM4, or EM7, IM6 was not included in the CFA, and this thesis provides no evidence to support the conclusion that IM6 is a valid and internally reliable measure of intrinsic motivation.

IM7

Sections 3.3.3 and 3.3.4 show that IM7 loaded onto Factor 5 and Component 4 with IM4. However, at least three individual measures are needed to constitute a valid and internally reliable measurement scale (Meyers et al., 2016: 441; Watkins, 2018: 222). Therefore, because IM7 did not sufficiently load onto a common Factor or Component with any other measures of intrinsic motivation besides IM4, IM7 was not included in the CFA and this thesis provides no evidence to support the conclusion that IM7 is a valid and internally reliable measure of intrinsic motivation.

4.3.2 Extrinsic Motivation Measures

The evidence in this thesis suggests that, of the seven new measures of extrinsic motivation that were developed in this thesis, four of them can be considered valid and internally reliable measures of extrinsic motivation. Those four measures are:

- EM1: I come to university because it will prepare me for a career that I have in mind.
- EM2: I come to university because it will help me to find a job that I enjoy.
- EM5: I come to university so that I can get a well-paid job at the end.
- EM7: I come to university because it will make me more employable.

There were shortcomings with the following three extrinsic motivation measures, each of which will now be discussed in turn. Those three measures are:

- EM3: I come to university because I want to show that I am capable of completing a degree
- EM4: I come to university because success here will make me feel much better about myself
- EM6: I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.

EM3 and EM4

Section 3.3.4 shows that EM3 and EM4 loaded onto Component 5 with EM7 and IM6. Moreover, the internal reliability score for this cluster of measures was above the acceptable threshold at .726. However, IM6 was not theoretically related to the EM3, EM4, and EM6, which were all designed to measure extrinsic motivation. Moreover, EM7 loaded onto Component 3 with the other measures of extrinsic motivation (EM1,

EM2, EM5, EM7) and with a higher loading score. Therefore, given that EM3 and EM4 alone would not be enough to constitute a valid and reliable measurement scale of an underlying construct (Meyers et al. 2016: 441; Watkins 2018: 222), EM3 and EM4 were not included in the subsequent CFA. Hence, this thesis provides no evidence to support the conclusion that EM3 and EM4 are valid and internally reliable measures of extrinsic motivation.

EM6

Sections 3.3.3 and 3.3.4 show that even though EM6 did not load onto a common Component or Factor with any other extrinsic motivation measures, EM6 did load onto Factor 2 and Component 2 with AMo1, AMo2, and AMo3. Moreover, the internal reliability score for this combination of measures was above the acceptable threshold at .732. However, because EM6 was not designed to measure amotivation and was not theoretically related to the three amotivation measures, it was not included in the CFA and this thesis provides no evidence to suggest that EM6 is a valid and internally reliable measure of extrinsic motivation.

4.3.3 Possible explanation of the issues with EM3, EM4, and EM6.

As stated in the last subsection (5.3.2), this thesis provides no evidence to suggest that EM3, EM4, or EM6 are valid and internally reliable measures of extrinsic motivation. One theoretical explanation of this finding could be that the extrinsic motivation measures that were valid and internally reliable (EM1, EM2, EM5, EM7) are all related to employment, which could be why the responses to these measures were correlated consistently enough for the measures to achieve acceptable levels of validity and internal reliability. Therefore, if researchers wish to widen the scope of the extrinsic motivation measures created in this thesis, it would be worthwhile to develop measures of extrinsic motivation that encapsulate more than employment-related motivation.

4.3.4 Amotivation

There is little to discuss about amotivation at this point, because the evidence presented in the Findings Chapter suggests that all three of the new measures of Amotivation created in this thesis can be considered valid and internally reliable indicators of Amotivation. Nonetheless, future researchers are encouraged to test the

replicability of this finding by using the same measures and conducting the same analyses with data from another sample that would, ideally, be representative of 'students in general.'

4.3.5 How do the motivations findings in this thesis contribute to motivations research?

The findings in this thesis contribute five new measures of intrinsic motivation, four new measures of extrinsic motivation, and three new measures of amotivation. These measures can be used in addition to, or as an alternative to, existing measures of student motivation such as the measures in the **A**cademic **M**otivation **S**cale (Vallerand et al. 1992) and the **S**hort **A**cademic **M**otivation **S**cale (Kotera et al. 2019).

One limitation of the intrinsic and extrinsic motivation measures created in this thesis is that they only measure intrinsic and extrinsic motivation per se, and not different forms of intrinsic or extrinsic motivation. For example, the AMS and the SAMS measure three different forms of intrinsic motivation and three different forms of extrinsic motivation, which are listed in Table 21 below (see section 1.4.5 for a list of the individual measures of each form of motivation).

Table 21: The Different forms of motivation measured in the AMS and SAMS

Forms of Intrinsic Motivation that are measured in the AMS and SAMS	Forms of Extrinsic Motivation that are measured in the AMS and SAMS
Intrinsic Motivation to Know	Identified Regulation
Intrinsic Motivation toward Accomplishment	Introjected Regulation
Intrinsic Motivation to Experience Stimulation.	External Regulation

It is also worth reiterating the point made in subsection 4.3.3 of this thesis about the fact that the valid and internally reliable extrinsic motivation measures in this thesis are also limited in scope because they all relate to employment.

Nonetheless, the scope of the valid and internally reliable measures of *intrinsic* motivation in this thesis compare favourably with the measures in the AMS and SAMS, because a wider range of intrinsic motivations are covered by the measures in this thesis, even though these measures cannot easily be categorised in terms of different forms of intrinsic motivation listed in Table 21 above.

This thesis set out to broaden the scope of the AMS by creating new measures of motivations, whilst maintaining the shorter format of the SAMS. Considering the points

made in this section, it is reasonable to conclude that this goal was partially achieved. However, other researchers who want to measure motivation must judge for themselves how the scope of the motivation measures created in this thesis compare to the measures in the AMS or SAMS.

Nevertheless, regardless of the scope of the new measures of motivation, the evidence in this thesis suggests that some of the new measures in this thesis were at least valid and internally reliable enough to provide a general measure of levels of intrinsic, extrinsic, and amotivation. Therefore, it was possible to use data derived from those new measures to test for relationships between student motivations and student reflexivity. The results of those tests for relationships are discussed in the next part of the Discussion Chapter, Part Three.

4.4 Discussion Chapter Part Three: Relationships between Motivations and Reflexivity among Students

The evidence presented in the findings chapter suggests that this thesis has successfully created valid and internally reliable measures of:

- Meta reflexivity (6 individual measures)
- Fractured reflexivity (3 individual measures)
- Intrinsic motivation (5 individual measures)
- Extrinsic motivation (4 individual measures)
- Amotivation (3 individual measures)

This made it possible to conduct bivariate analysis to test whether or not there were statistically significant relationships between the reflexivity and motivations of the students in this thesis. For the bivariate analysis, average scores were calculated for each of the five constructs. This was achieved by taking one construct at a time and adding up each respondent's score for each individual measure and then dividing that number by the number of individual measures for that construct. For example, each respondent's average meta reflexivity score was calculated by adding up the respondent's scores for each of the six individual meta reflexivity measures and then dividing that number by six.

The results of the bivariate analysis are presented below in Table 22. These results suggest that there are four statistically significant relationships between reflexivity and motivations among the student sample used in this thesis. Each of the statistically

significant relationships will now be discussed in turn, with reference to the relevant literature.

Table 22: Summary of tests for relationships between reflexivity and motivation constructs

Meta Reflexivity and Fractured Reflexivity	No significant relationship
Meta Reflexivity and Intrinsic Motivation**	Statistically significant medium-strength positive relationship between meta reflexivity and intrinsic motivation.
Meta Reflexivity and Extrinsic Motivation**	Statistically significant weak-strength positive relationship between meta reflexivity and extrinsic motivation.
Meta Reflexivity and Amotivation**	Statistically significant weak-strength negative relationship between meta reflexivity and amotivation.
Fractured Reflexivity and Intrinsic Motivation	No significant relationship
Fractured Reflexivity and Extrinsic Motivation	No significant relationship
Fractured Reflexivity and Amotivation**	Statistically significant weak-strength positive relationship between Fractured Reflexivity and Amotivation.
** Indicates that the correlation is significant at the 0.01 level	

4.4.1 Relationship between Meta Reflexivity and Intrinsic Motivation

The evidence in this thesis suggests that there is a statistically significant medium-strength positive relationship between meta reflexivity and intrinsic motivation. In other words, it appears that as levels of meta reflexivity increase, so do levels of intrinsic motivation. Therefore, regardless of any potential causal relationships between meta reflexivity and intrinsic motivation, the findings of this thesis suggest that students with higher levels of meta reflexivity are significantly more likely to have optimal student experiences, given that research over the past four decades has found that intrinsic motivation is associated with enhanced learning, performance, creativity, optimal development, and psychological wellness (Di Domenico and Ryan, 2017).

Furthermore, considering the evidence in this thesis suggesting that meta reflexivity and intrinsic motivation are significantly related, it is also reasonable to infer that students with higher levels of meta reflexivity are more likely to find inherent satisfactions and joys from being at university that are not dependent on external incentives or external pressure (Ryan and Deci, 2020: 2). Moreover, the evidence in this thesis suggests that students with higher levels of meta reflexivity are more likely to be active and engaged learners who a) achieve better learning outcomes and b) experience greater psychological and physical health (Froiland and Worrell, 2016; Ryan and Deci, 2018: 475).

4.4.2 Relationship between Meta Reflexivity and Amotivation

The evidence in this thesis suggests that there is a statistically significant weak-strength *negative* relationship between meta reflexivity and amotivation. In other words, it appears that, as levels of meta reflexivity increase, levels of amotivation decrease. Therefore, regardless of any potential causal relationships between meta reflexivity and amotivation, the findings of this thesis suggest that students with higher levels of meta reflexivity are significantly more likely to have optimal student experiences, given the typical correlates of amotivation.

For example, research has shown that people who are amotivated are more likely to be passive, ineffective, and without purpose (Ryan and Deci, 2018: 16). Moreover, amotivation is a "strong negative predictor of engagement, learning, and wellness" (Ryan and Deci, 2020: 3). Therefore, given that the evidence in this thesis suggests that meta reflexivity and amotivation are significantly *negatively* related, it is reasonable to infer that meta reflexivity is conducive to optimal student experiences not only because it is significantly associated with higher levels of intrinsic motivation, but also because meta reflexivity is significantly associated with lower levels of amotivation.

4.4.3 Relationship between Fractured Reflexivity and Amotivation

With regards to the relationship between fractured reflexivity and amotivation, the opposite of the conclusions for meta reflexivity and amotivation applies. This is because the evidence in this thesis suggests that there is a statistically significant weak-strength *positive* relationship between fractured reflexivity and amotivation. In other words, it appears that as levels of fractured reflexivity increase, so do levels of amotivation.

Therefore, considering the evidence that people who are amotivated are more likely to be passive, ineffective, and without purpose (Ryan and Deci, 2018: 16), and given that amotivation is a "strong negative predictor of engagement, learning, and wellness" (Ryan and Deci, 2020: 3), it is reasonable to infer that fractured reflexivity undermines optimal student experiences, given that the findings in this thesis suggest that fractured reflexivity is significantly associated with higher levels of amotivation.

4.4.4 Relationship between Meta Reflexivity and Extrinsic Motivation

The evidence in this thesis suggests that there is a statistically significant weak-strength positive relationship between meta reflexivity and extrinsic motivation. In other words, it appears that the more frequently people use meta reflexivity, the more likely they are to be extrinsically motivated. However, regardless of any potential causal relationship between meta reflexivity and extrinsic motivation, inferences cannot automatically be made about what the evidence in this thesis suggests about the relationship between meta reflexivity, extrinsic motivation, and student experiences. This is because extrinsic motivation is not straightforwardly good or bad in terms of how it is likely to influence the quality of a person's experiences: it depends on how integrated it is.

The evidence in this thesis that meta reflexivity and *intrinsic* motivation are significantly related suggests that meta reflexivity is likely to be conducive to optimal student experiences, regardless of the relationship between meta reflexivity and *extrinsic* motivation. However, because research suggests that some forms of extrinsic motivation can undermine intrinsic motivation (Ryan and Deci, 2000: 70), it is possible that some forms of extrinsic motivation could undermine the quality of student experiences, even among students who are highly intrinsically motivated.

To explain why extrinsic motivation can undermine the quality of student experiences, it is necessary to consider the four forms of extrinsic motivation outlined by Ryan and Deci (2018). Before doing this, it is important to reiterate the fact that the evidence presented in this thesis does not contain data on the four forms of extrinsic motivation that are about to be described. This means that the evidence in this thesis cannot tell us how the extrinsic motivations reported by the sample of students in this thesis might have been influencing the quality of their student experiences.

4.4.5 What are the four forms of Extrinsic Motivation outlined by Ryan and Deci (2018)?

When we are intrinsically motivated, we feel autonomous and not like we are being controlled by external factors. In other words, from a first-person perspective, intrinsic motivations feel internally originating and they feel fully congruent with our individual sense of self. On the other hand, when we are *extrinsically* motivated, we can feel relatively autonomous, but we can also feel controlled. In other words, because

extrinsic motivations emerge from external factors, they can make us feel more autonomous, but they can also make us feel controlled.

To explain why some extrinsic motivations can make us feel controlled whereas some extrinsic motivations can make us feel autonomous, Ryan and Deci (2018) conceptualised four distinct forms of extrinsic motivation. The first two forms of extrinsic motivation are experienced as controlling, whereas the second two forms of extrinsic motivation are experienced as relatively autonomous.

Forms of Extrinsic Motivation that make people feel controlled.

External Regulation and Introjected Regulation are both forms of extrinsic motivation that make people feel controlled. *External regulation* is where our behaviours feel directly controlled by *external* forces that are not congruent with our individual sense of self but are motivating enough to lead us to action (Ryan and Deci, 2018:14). An example of external regulation would be when a student only attends their university classes because of a fear of being punished by the university and/or their parents if they do not attend.

On the other hand, *Introjected Regulation* is where our actions feel internally controlled by motivations that are not congruent with our sense of self, such as guilt, shame, contingent self-esteem, fear of disapproval, self-aggrandizement, or ego enhancement (Ryan and Deci, 2018: 14). An example of introjected regulation would be when a student only attends their university classes so that they can win the approval of their teachers and/or look good in front of family members.

Forms of Extrinsic Motivation that make people feel autonomous.

The second two forms of extrinsic motivation conceptualised by Ryan and Deci (2018) are *identification* and *integration*. Identification and integration are the two forms of extrinsic motivation that make people feel relatively autonomous.

Identification is where our actions are driven by an acceptance of and valuing of some external motivating factor. An example of identification would be when a student is not necessarily intrinsically motivated to attend their university classes but chooses to go to them anyway because they believe that education is important and will improve their individual life.

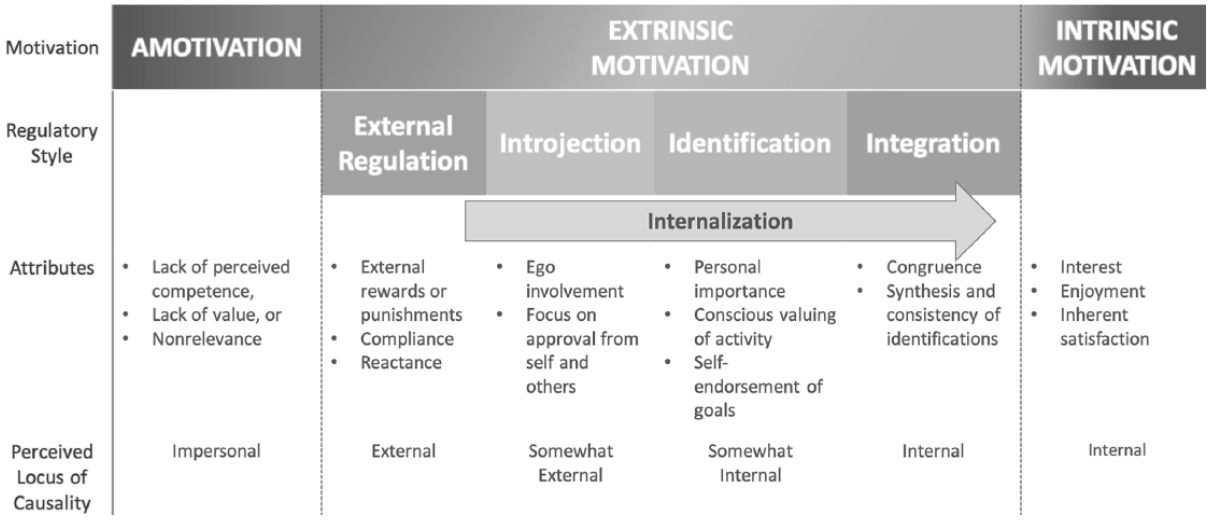
On the other hand, *Integration* is similar to Identification, but it is more internalised and, therefore, it feels even more autonomous. This is because Integration refers to

extrinsic motivations that can be fully integrated with a person's values and beliefs to the point where the extrinsic motivation feels fully congruent with the person's individual sense of self. An example of integration would be when a student attends their university classes so that they can learn new things and become a better person so that they can make positive contributions to society.

Implications of the four forms of Extrinsic Motivation

To understand the implications of the four forms of extrinsic motivation for human experiences, we must think of extrinsic motivation as existing on a continuum from relatively autonomous to relatively controlled. To this end, it is helpful to take another look at the taxonomy of motivation that was presented in section 2.4.1 and is re-presented below in Table 23.

Table 23: Self Determination Theory Taxonomy of Human Motivation [Copied from Ryan and Deci, 2020: 2]



As the middle section of Table 23 illustrates, the most autonomous forms of extrinsic motivation are identification and integration. These forms of extrinsic motivation are very similar to intrinsic motivation insofar as actions driven by them can feel highly volitional (Ryan and Deci, 2020: 3). However, autonomous forms of extrinsic motivation differ to intrinsic motivation because intrinsic motivation is associated with interest and enjoyment, whereas autonomous forms of extrinsic motivation are associated with valuing an external factor enough to consider an activity worthwhile, but not necessarily finding the activity interesting or enjoyable.

In other words, because extrinsically motivated behaviours can feel autonomous *if* they are experienced as volitional and congruent with a person's sense of self (Ryan and Deci, 2018: 14), people are more likely to feel autonomous when they are extrinsically motivated by external factors that they value and consider important. On the other hand, when extrinsically motivated behaviours are not experienced as volitional and congruent with a person's sense of self, the extrinsically motivated behaviours are likely to feel controlled; for example, when extrinsically motivated behaviours are motivated by the promise of external rewards or the threat of externally imposed punishments (Ryan and Deci, 2018: 14).

Ultimately, the extent to which extrinsically motivated behaviours feel controlled or relatively autonomous depends on how much the extrinsic motivation has been internalised (Ryan and Deci, 2018: 14).

In reality, the distinctions between the four forms of extrinsic motivation are not clear cut, and Ryan and Deci (2018 :15) acknowledge that the different forms of extrinsic motivation are hypothetical concepts which refer to internal psychological processes that are not directly observable by researchers. Nonetheless, the conceptual distinctions are important because empirical research suggests that people reliably experience the differences between autonomous and controlled forms of extrinsic motivation, and it is possible for researchers to observe the distinct results that follow from the associated experiences (Ryan and Deci, 2018: 15).

We must remember that no human lives in a vacuum, isolated from external factors. Therefore, it would be reasonable to assert that all human actions are at least somewhat extrinsically motivated, given that we always act in relation to external factors. Nevertheless, this assertion can be accepted whilst maintaining two important claims. Firstly, that our actions can vary in *the extent* to which they are consciously regulated in response to external factors. Secondly, that the extent to which our actions are regulated in relatively autonomous or controlled ways has implications for our psychological wellbeing and the quality of our experiences. For example, going to university to enable yourself to get a socially-beneficial job will feel a lot different to going to university because you feel like your parents are forcing you to, and yet both of these examples are forms of extrinsic motivation.

The important question is whether, when we consciously regulate our behaviour, we feel more autonomous or controlled. The idea that human actions can be consciously influenced by external factors implies that we can regulate our behaviour in order to

do something that we might not have otherwise done. However, the less integrated the extrinsic motivation is, the more effort it takes to consciously regulate our behaviour in accordance with it, and the less autonomous and more controlled we are likely to feel when pursuing the associated actions. Hence, in this context, the word 'controlled' is used in a negative, non-autonomous sense whereby the induvial feels either purely controlled by external factors or like they have to control themselves because of external factors.

4.4.6 How should we interpret the relationship between Extrinsic Motivation and Meta Reflexivity that was found in this thesis?

The purpose of the last part of the discussion was to explain why conclusions about the relationship between meta reflexivity and extrinsic motivation cannot be made without evidence of the extent to which extrinsic motivation is internalised, which this thesis did not have. More specifically, to make conclusions about the implications of extrinsic motivation for the quality of student experiences, we would need data not merely on levels of extrinsic motivation per se among students, but on the four forms of extrinsic motivation described in the previous section (4.4.5).

Nonetheless, the evidence in this thesis suggests that at least some forms of extrinsic motivation are significantly associated with meta reflexivity. One would expect this to be the case because one would expect that the more a student thinks about the broader implications of going to university (i.e., the more they use meta reflexivity), the more likely they are to find extrinsic motivations in addition to any intrinsic motivations they might already have.

It is reasonable to suspect that the more integrated forms of extrinsic motivation would be most strongly associated with meta reflexivity, because meta reflexivity is likely to be the mode of reflexivity that is most conducive to helping people to integrate extrinsic motivation, given that it involves a deeper level of reflectiveness than the other modes.

Moreover, further bivariate analysis in this thesis found a significant positive relationship between intrinsic and extrinsic motivation (see Appendix 10). This suggests that the extrinsic motivation of the students in this sample was well-integrated, because the evidence of a significant *positive* relationship between intrinsic motivation and extrinsic motivation suggests the opposite of the conclusion that the

intrinsic motivation of students in this sample was being undermined by extrinsic motivation.

4.4.7 Conclusion of Discussion Chapter Part Three

Part Three of the chapter has now discussed the statistically significant relationships between motivations and reflexivity in reference to relevant literature. It has also explained why inferences cannot be made about what the evidence in this thesis suggests about the relationship between meta reflexivity, extrinsic motivation, and student experiences. We will now move on to the fourth and final part of the discussion chapter, which will explain how the evidence in this thesis contributes to student experience literature and improves our understanding of why the quality of student experiences differ.

4.5 Discussion Chapter Part Four: How does the Empirical Evidence in this Thesis Contribute to Student Experience Literature?

Now that the empirical evidence in this thesis has been discussed, Part Four of the Discussion Chapter will explain how the empirical evidence in this thesis contributes to student experience literature by improving our scholarly understanding of why student experiences differ. Section One of Part Four will help to contextualise the Section Two by presenting a theoretical explanation of how this thesis goes beyond the Bourdieusian framework to improve our ability to explain differences in student experiences. Section Two of Part Four will then explicitly link the empirical evidence in this thesis to relevant student experience literature that was cited in the literature review.

4.5.1 Section One: Theoretical explanation of how this thesis improves our ability to explain differences in student experiences.

The literature review in this thesis presented evidence that the Bourdieusian analytical framework can help to explain differences in student experiences, especially among students who are *not* relatively similarly positioned in terms of economic, social, and cultural factors. For example, by showing the implications of concepts such as habitus, capital, and field, Bourdieusian studies have provided some helpful ways to explain differences in the experiences of middle and working-class students at elite universities (Reay et al. 2010; Reay, 2018; Reay 2021).

However, this thesis also argues that our analysis must go beyond the Bourdieusian framework to account for reflexivity and motivations if we wish to explain differences in the experiences of students who are relatively similarly positioned in terms of economic, social, and cultural factors. This is because the habitus and capitals of students are harder to differentiate when students are relatively similarly positioned in terms of economic, social, and cultural factors.

While an overarching aim of this thesis was to improve our ability to explain differences in the experiences of students who *are* relatively similarly positioned, there is no obvious reason why the framework in this thesis should not also be able to help explain differences in the experiences of students who are *not* relatively similarly positioned, such as middle and working-class students at elite universities (Reay et al. 2010). This is because, even if we take a sample of students who are not similarly positioned from a Bourdieusian perspective – i.e., in terms of their habitus, capitals, and familiarity with their university field – it is still necessary to explain *how* the habitus, capital, and field of students can influence the quality of their student experiences in ways that cause some students to have better experiences than others.

To explain how the habitus, capital, and field of students can influence the quality of their individual student experiences, it is necessary to firstly explain what it is about humans that makes it possible for our previous experiences to influence the quality of our subsequent experiences. More specifically, we need to understand the psychological mechanisms *through* which previous experiences can influence subsequent experiences. Only then can we adequately explain why some kinds of previous experiences can improve the quality of a person's student experiences whereas other kinds of previous experiences can worsen the quality of a person's student experiences.

As explained in the Introduction and Literature Review (section 1.2.3), this thesis recognises that the Bourdieusian framework can make valuable contributions to our explanations of how a person's previous experiences can shape the quality of their subsequent experiences as a university student. However, this thesis argues that, ultimately, the Bourdeiusian framework can only go as far as concluding that *student experiences differ because students differ in the extent to which their habitus and capitals are aligned with their educational field (i.e., their university)*. For example, by applying the Bourdieusian framework, studies like Reay (2021) show us that some working-class students have negative experiences at elite universities because their

habitus and capital (which are determined by their previous experiences) are not sufficiently aligned with their educational field (i.e., their university). However, despite its merits, the Bourdieusian framework does not sufficiently reveal *how* the misalignment between a student's habitus, capital, and field can influence the student's psychological wellbeing and cause the student to experience negative emotions. This is because, unlike the framework in this thesis, the Bourdieusian framework does not explain what it is about humans that makes phenomena like negative emotions possible.

These points can be illustrated by considering a group of students who attend the same lecture at the same time. At one level of analysis, it is accurate to say that a group of students who attend the same lecture at the same time will each experience the same lecture. However, it is also reasonable to expect that each individual student who attends the same lecture will experience the same lecture differently. If we analyse and try to explain the differences in individual student experiences via the Bourdieusian framework, it will ultimately lead us to the conclusion that students who attend the same lecture at the same time will experience the lecture differently because the habitus and capital of each student are not equally aligned with their field (i.e., the lecture and the university within which the lecture takes place). Although that conclusion is valuable, it does not address *how* each student's habitus and capital can cause psychological differences in the way each student experiences the same lecture. This is because the Bourdieusian framework does not conceptualise any psychological mechanisms that can constitute the link between a person's habitus, capital, and field on the one hand, and the quality of their student experiences on the other hand. This is why a framework like the one provided by Self-Determination Theory is needed, which conceptualises Basic Psychological Needs.

Why is a framework needed like the one provided by Self-Determination Theory?

Analysis via the Bourdieusian framework has shown that a lack of social and cultural capital is associated with students feeling excluded and like they do not belong at a particular university (e.g., Reay et al. 2010). However, the Bourdieusian framework does not explain what it is about humans that makes it possible for a person to feel excluded or like they do not belong somewhere. This is one reason why there was scope to deepen the analysis of student experiences in this thesis.

This thesis argues that feelings of exclusion or non-belonging are only explicable in reference to a framework such as Self-Determination Theory (SDT), which provides evidence that humans have basic psychological needs that can be conceptualised as mechanisms through which a person's previous experiences can causally influence their subsequent experiences. Only in reference to psychological needs such as a *need for relatedness* is it possible to explain how humans can feel excluded or like they do not belong somewhere.

Therefore, although the Bourdieusian framework does an effective job of showing that a student's habitus and capital can influence their university experiences, this thesis argues that we must go beyond the Bourdieusian framework and refer to phenomena like basic psychological needs if we wish to move beyond description to an explanation of *how* a student's habitus and capital can influence the quality of their university experiences. More specifically, this thesis argues that if we wish to deploy concepts like habitus, capital, and field in our analysis of student experiences, we must refer to phenomena like basic psychological needs to explain *how* differences in individual habitus and capital can cause differences in the ways that a group of students each experience the same activity, such as the same lecture.

Where do motivations and reflexivity fit into the picture?

This thesis argues that motivations and reflexivity are integral aspects of all student experiences because they are vital mechanisms – which cannot be reduced to concepts like habitus and capital – through which individuals consciously and unconsciously influence the quality of their student experiences in ways that are shaped, but not fully determined, by the individual's previous experiences. Therefore, assuming that the individuals who constitute a given sample of students will always subjectively experience the same activities (e.g., the same lecture) differently because of their previous experiences, this thesis is an attempt to make some of the psychosocial reasons for these differences more explicit than the Bourdieusian framework alone can.

Hence, in many ways, this thesis is an attempt to explain why similarly positioned students can and do experience the same activities differently. For example, given that each student in the same lecture is, as much as is possible, experiencing the same activity, the differences in each student's individual experiences of that same activity can only be explained by whatever each student brings to their individual experiences

at a physiological, psychological, or social level. However, this thesis argues that the Bourdieusian framework does not go far enough in explaining the psychological implications of social factors because it does not adequately account for motivations or reflexivity, and it does not conceptualise psychological mechanisms like basic psychological needs, which can explain how a person's habitus, capitals, and field can influence the quality of their student experiences.

Now that these theoretical points have been articulated, we will now link the empirical evidence that was presented in the Findings Chapter to the student experience literature that was presented in the Literature Review.

4.5.2 Section Two: Contributions to Student Experience Literature and Other Relevant Research

By applying Archer's framework of reflexivity to the study of student experiences, this thesis makes a quantitative contribution to a growing body of predominantly qualitative research that has applied Archer's reflexivity framework in areas relating to student experiences. Those studies include studies of *widening participation* (Kahn, 2009); *navigation of education and career pathways* (Dyke et al. 2012); *the reflexivity of work-based students* (Bovill, 2012); *student engagement* (Kahn, 2014); *student learning in higher education* (Case, 2015); the *professional development of teachers* (Lord, 2016); *student engagement with teaching-learning interactions* (Kahn, 2017)*; transnational mobility and transnational social ties of students* (Golob and Makarovic, 2018); the *decision-making processes of further and higher education students* (Baker 2018; Baker 2019); and the *experiences of doctoral candidates* (Sun and Trent, 2022).

A recent systematic literature review found a large quantity and variety of definitions of 'student experience' and concluded that the term lacks a widely accepted meaning (Matus et al. 2021). Similarly, Jones (2018: 1040) argued that, despite its widespread usage, student experience is "remarkably under-developed as a construct in the academic literature" and "researchers have been surprisingly reticent at discussing, debating and articulating" its meaning. As such, Jones (2018: 1040) concluded that student experience is an "undefined and under-theorised term", and he proposed a new conceptual framework predicated on the assumption that student experience is not restricted to the context of academic learning and involves "a complex series of interactions between a student and the various components of their environment".

In another recent study, Potschulat et al. (2021: 14) criticised the term student experience, arguing that the term has “none of the rigour or precision that should characterise carefully considered concepts in Sociology.” Furthermore, Potschulat et al. (2021: 5) argued that the “fuzziness” of the term student experience makes it “ill equipped as a sociological concept”. This led Potschulat et al. (2021: 16) to suggest that “it may be more useful to eschew use of the term as a proxy altogether (or, if using, to subject to a high threshold of definition and enquiry”.

This thesis has responded to the above literature, and addressed some of the issues it raises, by arguing that student reflexivity and student motivations are crucial aspects of all student experiences. More specifically, in light of the evidence of statistically significant relationships between student reflexivity and student motivations, this thesis argues that student reflexivity should be accounted for in all explanations of differences in the quality of student experiences, given what SDT research tells us about relationships between motivations and the quality of human experiences more generally.

Moreover, the evidence in this thesis suggests that the term ‘student experience’ can and should be more than a purposefully imprecise “effective etcetera principle” (Potschulat et al. 2021: 14). This is because the evidence in this thesis has begun to precisely specify what reflexivity and motivations are, why they are crucial aspects of all student experiences, and how they can be partially measured. As such, this thesis has contributed to what Potschulat et al. (2021: 5) argues is the task of critical social science – namely “to reveal what is hidden.”

As stated above, Jones (2018: 1041) attempted to establish more conceptual precision by proposing a conceptual framework predicated on the assumption that student experience involves “a complex series of interactions between a student and the various components of their environment which can, depending on the nature of the interaction, result in student learning.” Although this thesis did not analyse relationships between student interactions and learning, the evidence of a significant relationship between intrinsic motivation and meta reflexivity suggests that student interactions with university that foster meta reflexivity will be more conducive to positive outcomes like learning, given the evidence from previous research that learning is enhanced when students are intrinsically motivated (Froiland and Worrell, 2016; Di Domenico and Ryan, 2017). Conversely, the evidence of a significant positive relationship between fractured reflexivity and amotivation suggests that student

interactions that cause or contribute to fractured reflexivity will undermine positive outcomes like learning, given that evidence from other previous research suggests that learning is constrained when students are amotivated (Ryan and Deci, 2020: 3).

Without underplaying the importance of learning, Jones (2018) highlighted the need for a model of student experience that goes beyond learning contexts to account for wider aspects of student life which also contribute to student experience. Hence, Jones (2018: 1042) proposed a model of student experience that highlights the importance of *interactions* between students and their environments and does not depict students merely as passive consumers. This enabled Jones (2018: 1042) to support "a conception of the undergraduate experience based around the student (and their individual circumstances), the factors that define the student's environment and the processes by which they interact with that environment."

Building on this conception of Jones's (2018), and in reference to Ryan and Deci (2018) and Archer (2003, 2007, 2011), this thesis argues that motivations and reflexivity are always crucial aspects of the processes through which students interact with their educational environment and educationally-related activities. More specifically, besides highlighting the importance of reflexivity per se in student experiences, this thesis provides evidence that student interactions that foster meta reflexivity will be more conducive to optimal student experiences, given the evidence that a significant positive relationship exists between meta reflexivity and intrinsic motivation. Conversely, the evidence in this thesis suggests that student interactions that cause fractured reflexivity are more likely to lead to sub-optimal student experiences, given that a significant positive relationship appears to exist between amotivation and fractured reflexivity.

Jones (2018: 1049) argued that "it is the individual circumstances and pre-dispositions of the student that determines the extent to which they engage with or feel alienated by their experiences" (Jones, 2018: 1049). Although the term 'pre-disposition' could be interpreted as having overly-deterministic connotations, it is appropriate in this context because it highlights the fact that *what went before* (in terms of a student's previous experiences, motivations, and reflexivity) has implications for *what comes next* (in terms of the student's subsequent university experiences, motivations, and reflexivity). In this sense, this thesis argues that the term 'pre-disposed' can be interpreted as 'pre-disposed by previous experiences, motivations, and reflexivity', and not 'pre-disposed before birth because of biology'. Therefore,

Jones's point about pre-dispositions can be taken to mean that a person's previous experiences always influence – but do not fully determine – the overall quality of their subsequent experiences as university students.

However, Jones (2018: 1051) argued that further research was needed to understand the processes through which students engage with or feel alienated from each aspect of their university environment and the corresponding way in which each aspect waxes or wanes in influence. In other words, there was a need for research to analyse the factors determining the pre-dispositions of students, which shape their interactions with each aspect of their university experiences. This thesis contributes to knowledge in those areas by providing evidence which suggests that there is a significant positive relationship between meta reflexivity and intrinsic motivation; therefore, students with higher levels of meta reflexivity are more likely to have less alienating and more optimal student experiences, given that intrinsic motivation is associated with better experiences and psychological wellbeing (Froiland and Worrell, 2016; Ryan and Deci, 2018: 475). Conversely, the evidence in this thesis suggests that fractured reflexivity among students is more likely to pre-dispose students to more alienating and sub-optimal university experiences, given that a significant positive relationship was found between amotivation and fractured reflexivity, and given the evidence that amotivation is associated with passivity and is a "strong negative predictor of engagement, learning, and wellness" (Ryan and Deci, 2018: 16; Ryan and Deci, 2020: 3).

Links to Student Emotions Research.

Matus et al (2021: 15) concluded that very few publications relating to student experience address student emotions, which they argued is problematic considering that emotions appear to be an important part of student experiences. Although this thesis did not collect data that is specifically about student emotions, the evidence in this thesis of a significant positive relationship between meta reflexivity and intrinsic motivation suggests that meta reflexivity could be conducive to positive emotions, given that other research found a significant relationship between intrinsic motivation and positive emotions among sport students (Løvoll et al. 2017). The possibility of meta reflexivity being conducive to positive emotions appears even more likely when we consider the evidence in this thesis that meta reflexivity is significantly *negatively* related to amotivation, which is characterised by passivity and lack of purpose (Ryan

and Deci, 2017: 16) and is a “strong negative predictor of engagement, learning, and wellness” (Ryan and Deci, 2020: 3).

Links to Student Relationships and Student Belonging Research

The studies of Meehan and Howells (2018), Bates et al., (2019), and Heron (2020) all presented evidence about the importance of relationships and sense of belonging for students. While this thesis did not collect data on student relationships or student belonging, the evidence about the relationships between motivations and reflexivity can contribute to those areas. This is because other previous research (e.g., Wang et al., 2019) found that people are more likely to feel autonomously motivated when their basic psychological need for relatedness is supported. Therefore, considering the evidence of Wang et al., (2019) that autonomous forms of motivation appear to be enhanced when a person’s need for relatedness is supported, the evidence in this thesis suggests that meta reflexivity might also be increased when students feel more related to their university experiences, given that there appears to be a significant positive relationship between meta reflexivity and intrinsic motivation, which is the most autonomous form of motivation.

How does this thesis go beyond the Bourdieusian framework to improve our ability to explain differences in student experiences?

This thesis set out to improve our ability to explain differences in the quality of student experiences, especially among students who are relatively similarly positioned in terms of economic, social, and cultural factors. To achieve this aim, relationships between motivations and reflexivity were analysed, because motivations and reflexivity have not been sufficiently accounted for through the Bourdieusian framework, which appears to constitute the most common lens through which differences in student experiences have been analysed in Sociology of Education literature (e.g., Ingram, 2011; Reay, 2018).

When the Bourdieusian framework is used to analyse student experiences (e.g., Reay, 2021), differences in student experiences are explained through the concepts of habitus, capital, and field. Therefore, from the Bourdieusian perspective, the ultimate reason that individual students have different university experiences is because each individual student differs in the extent to which their habitus and capital align with their educational field (i.e., the university).

Bourdieusian concepts like habitus, capital, and field remain useful for analysing differences in student experiences, especially group-level differences between working-class and middle-class students at elite universities (e.g., Reay, 2021). However, the evidence in this thesis suggests that motivations and reflexivity are crucial aspects of all student experiences that must be accounted for in any explanation of why student experiences differ. This is the case whether we are trying to explain differences in student experiences *within* individuals (e.g., why does the quality of an individual's student experiences differ from one lecture to the next?) or *between* individuals (e.g., why do the individuals in a group of students experience the same lecture differently?).

Previous research strongly suggests that student motivations have implications for student experiences. For example, students who are intrinsically motivated appear to have better experiences, greater psychological health, and higher levels of satisfaction (Froiland and Worrell, 2016; Ryan and Deci, 2018: 475; Ryan and Deci, 2020: 2). Conversely, previous research suggests that amotivation is associated with sub-optimal experiences that are characterised by passivity and lower levels of engagement, learning, and wellness (Ryan and Deci, 2018: 16; Ryan and Deci, 2020: 3). The key original contribution of this thesis is that it provides evidence to suggest that there are statistically significant relationships between student motivations and reflexivity. In other words, the evidence in this thesis suggests that the reasons students have for coming to university are related to the ways that students consciously reflect on their options, make conscious decisions, and pursue intentional courses of action.

Therefore, this thesis not only explains (in reference to Self-Determination Theory) the importance of motivations for student experiences, but it also shows (by providing empirical evidence of significant relationships between motivations and reflexivity) that reflexivity appears to be a crucial aspect of student experiences. These contributions go beyond what is revealed via the Bourdieusian framework because they suggest that, when attempting to explain why student experiences differ, it is necessary to account for motivations and reflexivity.

Arguably, the Bourdieusian analytical framework – comprising of habitus, capitals, and field – can help to explain why the motivations and reflexivity of students differ; for example, it could be because of their habitus and capitals that some students are highly intrinsically motivated and tend to use a lot of meta reflexivity. However, it is

important that concepts like habitus, capitals, and field are not conflated with motivations and reflexivity, because this thesis has found empirical evidence that motivations and reflexivity are crucial aspects of student experiences in their own right, regardless of how a student's motivations and reflexivity might be influenced by their habitus, capitals, or field.

Furthermore, as explained in section 4.5.1, the Bourdieusian framework does not identify any psychological mechanisms that constitute the link between a person's habitus, capital, and field on the one hand, and the quality of their student experiences on the other hand. Therefore, even if the Bourdeisian framework can help explain differences in motivations and reflexivity, the Bourdieusian framework alone is unable to explain how motivations and reflexivity can influence the quality of student experiences. To explain such relationships, this thesis argues that it is necessary to incorporate Ryan and Deci's (2018) empirically-based theory of Basic Psychological Needs. This is because it is only in reference phenomena such as Basic Psychological Needs that we can conceptualise what it is about humans that makes differences in subjective experiences possible beyond the extent to which our basic *physiological* needs are satiated. In other words, unless one asserts that the only reason some students have better experiences than others is because the basic *physiological* needs of some students are more satiated than others, then one must refer to psychological factors such as Basic Psychological Needs (which are, of course, always influenced by social factors).

Therefore, this thesis recognises that from a Bourdieusian perspective we can justify the assertion that student experiences differ because the alignment between the habitus, capitals, and fields of each student differ. However, the Bourdieusian perspective does not explain *how* misalignment between a student's habitus, capitals, and fields can influence the student's psychological wellbeing and, therefore, the quality of their student experiences. If we wish to explain such things, the evidence in this thesis suggests that student motivations and reflexivity should receive more attention than they have previously received in Bourdieusian studies of student experiences (e.g., Reay, 2018; Crozier et al. 2019; Reay, 2021). This does not make Bourdieusian studies of student experiences redundant in any way. Nor does it mean that there is no analytical or explanatory utility in concepts like habitus, capitals, or field – especially when explaining differences between the experiences of students at elite institutions. Nonetheless, the evidence in this thesis suggests that student

motivations and reflexivity have a stronger bearing on student experiences than Bourdieusian studies of student experiences have accounted for.

4.5.3 Conclusion of Discussion Chapter Part Four

Now that the empirical findings of this thesis have been discussed, the next chapter will conclude the thesis by discussing the strengths, limitations, and implications of the thesis, and by making recommendations.

Chapter 5: Conclusion

This chapter will conclude the thesis by considering the strengths and limitations of the thesis, and by making recommendations to researchers and student stakeholders.

5.1 Strengths of this Thesis

As the Discussion Chapter explained, this thesis has made multiple important contributions to the research areas of reflexivity, motivations, and student experiences. Those contributions are based on an advanced quantitative analysis of primary data from over 300 students.

Firstly, the evidence presented in the Findings Chapter suggests that this thesis successfully created new valid and internally reliable measures of meta reflexivity, fractured reflexivity, intrinsic motivation, extrinsic motivation, and amotivation. Because of that contribution, it was possible to conduct further analysis which provided evidence that there are statistically significant relationships between student motivations and reflexivity. The reasons why this finding significantly improves our understanding of why student experiences vary have been explained in the Discussion Chapter, but they can be summarised by saying that the findings of this thesis suggest that student reflexivity is a crucial aspect of all student experiences *because* it appears to be significantly related to student motivations. More specifically, the evidence in this thesis suggests that meta reflexivity appears to be conducive to optimal student experiences, because higher levels of meta reflexivity appear to be associated with higher levels of intrinsic and extrinsic motivation, and lower levels of amotivation. On the other hand, fractured reflexivity appears to undermine optimal student experiences, because higher levels of fractured reflexivity appear to be associated with higher levels of amotivation.

5.2 Limitations of this Thesis

There are several important limitations of this thesis, each of which will now be discussed in turn.

There is no student experience data.

An obvious limitation of this thesis is that it does not contain data on student experiences. In other words, the survey used in this research did not ask students to describe or rate their university experiences; therefore, although this thesis provides

new ways to explain differences in the quality of student experiences, no ‘student experience data’ was actually collected.

The main reason that students were not asked to describe or rate their student experiences in the quantitative survey is that the original plan was to use interviews to explore student experiences. This was because it was thought that interviews would be the ideal way of detecting the overall quality of a student’s university experiences. More specifically, the original plan was to use quantitative measures to indicate student motivations and reflexivity. Students would then be invited to attend an interview which would be used to identify if and how the quality of each student’s experiences differed according to their levels of motivations and uses of reflexivity, which would already have been indicated via the quantitative survey.

However, because of the disruptions that were caused by Covid-19 and explained in section 2.3.1 of this thesis, it was not feasible for interviews to play the role that was originally intend for them, which is why no qualitative data is presented in this thesis. Nonetheless, as the discussion chapter of this thesis demonstrates, it was still possible to link the quantitative data in this thesis to student experiences. This is because of the empirical evidence from Self-Determination Theory which shows the important role that human motivations play in shaping the quality of human experiences (Ryan and Deci, 2018).

More specifically, because this thesis provides empirical evidence that motivations and reflexivity are significantly related, and because previous research shows that motivations influence psychological wellbeing and the quality of human experiences, it is reasonable to infer that student reflexivity has a bearing on the quality of student experiences. Therefore, this thesis argues that although measures of student motivations are not measures of actual student experiences, measures of student motivations can be interpreted as measures of the potential for optimal student experiences to ensue *if* external factors are supportive of a student’s BPNs. In other words, this thesis argues that it is reasonable to assume that optimal student experiences can only ensue if the student is intrinsically motivated; conversely, optimal student experiences cannot ensue if the student is not intrinsically motivated, especially if the student is amotivated.

This thesis argues that student experiences will always be influenced by, among other things, student motivations and reflexivity, because people cannot act without motivation and they cannot consciously evaluate their options or make conscious

decisions without reflexivity. The evidence in this thesis suggests that meta reflexivity is conducive to optimal student experiences, given that it is significantly positively related to intrinsic motivation and significantly negatively related to amotivation. On the other hand, the evidence in this thesis suggests that fractured reflexivity appears to undermine optimal student experiences, given that it is significantly positively related to amotivation.

In summary, one of the overarching aims of this thesis was to test whether reflexivity has a bearing on student experiences. Although no student experience data was collected, this thesis provides evidence that reflexivity and motivations are significantly related; therefore, it appears that reflexivity does indeed a bearing on student experiences, given that reflexivity appears to be significantly related to motivations, and given what we know from previous research about the ways that motivations influence the quality of human experiences (see section 1.4.1).

Sampling limitations.

As explained in sections 2.3.1 and 2.3.12, the sampling approach in this thesis was limited by Covid-19 restrictions. For example, 3 of the student participants in this study were from Educational Psychology, whereas the other 333 student participants were from Sociology and/or Criminology. This means that there is no reason to argue that the sample in this thesis is representative of a broader population like 'the student population' or 'people in general'. It follows, therefore, that although the evidence in this thesis supports the claim that there are some statistically significant relationships between student motivations and reflexivity, further evidence would be needed before we could justify inferring that these relationships would exist among 'the student population' or among 'people in general'. More specifically, to justify inferring that the relationships between motivations and reflexivity identified in this thesis are applicable to 'the student population' or 'people in general', we would need corroborating evidence from samples that are representative of 'the student population' and/or 'people in general'.

Additionally, although the original plan had been to use more than one sample for the development of the new measures in his thesis, that was not possible because of the disruptions caused by Covid-19 (explained in sections 2.3.1 and 2.3.12). Hence, it is important to highlight that the new measures created and used in this thesis were not piloted or statistically tested using a development sample.

DeVillis (2017) suggests that, before a measurement scale is finalised, researchers should firstly administer the individual measures to a development sample because the results which emerge from an initial quantitative analysis "may be a quirk of the sample used in development", especially if the sample is non-representative (DeVillis, 2017: 139). Therefore, it would have been ideal for this thesis to have used at least two separate samples. Then, the performance of each individual measure could have been more comprehensively evaluated before scales derived from the individual measures were used to analyse relationships between different modes of reflexivity and different kinds of motivation.

It is also a limitation that this thesis used the same sample for both Exploratory and Confirmatory Factor Analysis. That is because using a different sample for Confirmatory Factor Analysis could have provided additional evidence about the strength of the factor structure that was identified in the Exploratory Factor Analysis (Whittaker and Schumacker, 2022). Once again, the reasons for this limitation are due to the disruptions caused by Covid-19, which meant that only one sample could be obtained. However, this is another limitation for researchers to be mindful of when interpreting the empirical findings in this thesis and when considering ways to build on them.

As such, researchers should be cautious when interpreting the findings obtained from the sample in this thesis, even though the sample in this thesis was relatively large, and even though there is no reason to believe that the students in this sample would have been atypical in comparison to the broader student population to which they belonged (DeVellis, 2017). For example, there is no reason to believe that the meaning ascribed to each measure would have been atypical among the students in this sample (DeVellis, 2017).

This thesis does not provide any evidence of the variables that influence student motivations or student reflexivity.

Although the evidence in this thesis suggests that there are statistically significant relationships between student motivations and reflexivity, this evidence does not illuminate the variables that will have determined each student's motivations and reflexivity at the time when each student completed the survey in this research. In other words, the measures used in this thesis are limited to measuring student motivations and reflexivity per se, and they do not tell us anything about the reasons

why a student's motivations and uses of reflexivity are the way they are at a given moment in time.

Nonetheless, researchers can now use the measures created in this thesis to measure student motivations and reflexivity and conduct further analysis to explore the variables that influence student motivations and reflexivity. In the meantime, and before research of that kind is conducted, Ryan and Deci (2018) provide a considerable amount of evidence of the likely causes and effects that are typically associated with higher and lower levels of each kind of motivation. The same is true of Archer (2003; 2007; 2011) regarding evidence of the likely causes and effects that are typically associated with higher and lower levels of each mode of reflexivity.

5.3 Recommendations for Future Research

This thesis offers four key recommendations to future researchers, each of which will now be discussed in turn.

Try to replicate the findings of this thesis.

Further research is needed to test the replicability of the findings in the thesis, especially given the fact that the findings in this thesis are based on evidence that was derived from a sample that was *not* representative of either 'the student population' or 'people in general'. Hence, although this thesis would encourage future researchers to use similar data collection and analysis methods, they should do so with samples that are representative of 'students in general' or 'people in general'. This would enable us to see if there is evidence to support the conclusion that the findings in this thesis are representative of broader populations beyond the sample that was used in this thesis.

Because it was not definitively clear whether Factor Analysis (FA) or Principal Components Analysis (PCA) would be more appropriate for the variables in this thesis, the data was analysed via both methods so that the results could be compared. The rationale for this decision is maintained because it provided an additional opportunity to strengthen the rigor of the overall findings of the thesis by facilitating an assessment of the extent to which the results from the two methods supported or undermined one another. As it turned out, there were only minor differences and, therefore, the two sets of results supported one another.

However, as DeVellis, (2017:196) explains, there are some important differences between FA and CFA, such as “the nature of the variance explained by components versus factors.” Hence, it is important to acknowledge that other approaches could have been taken which would have involved using either FA or PCA on its own. For example, one could argue that for research of the kind conducted in this thesis it would be appropriate to use FA on its own, instead of using PCA as well. This is because “factors determine how items are answered, whereas components are defined by how items are answered (DeVellis, 2017: 194). Moreover, although FA and PCA are both grounded in empirical data, components can be conceptualised as “end products of the items” in the sense that they are determined by scores on the individual items (DeVellis, 2017: 194). Conversely, factors can be can conceptualised as “idealized hypothetical variables that […] represent a cause, not an effect, of item scores.” (DeVellis, 2017: 194).

With those distinctions in mind, one could argue that *how frequently a person tends to use a mode of reflexivity* could be conceptualised as an ‘idealized hypothetical variable’ that should, in principle, determine a person’s responses to the corresponding measures for each mode. From this perspective, one could argue that it would be appropriate to use factor analysis on its own without using PCA.

Nonetheless, DeVellis (2017: 196) states that the distinctions between FA and PCA “are often overlooked with few if any adverse consequences” and “under most circumstances in which items have something meaningful in common, the different methods support the same conclusions” (DeVellis, 2017: 196). Hence, this thesis stands by the decision to use both FA and PCA and it would not discourage researchers from using both approaches again in future research.

Try to develop better measures of communicative and autonomous reflexivity.

In trying to replicate the findings of this thesis, further research could also be used to improve the validity and internal reliability of the communicative and autonomous reflexivity measures created in this thesis. Alternatively, future research could create completely new measures of communicative and autonomous reflexivity and test whether they are more valid and internally reliable than the measures created in this thesis. If that can be achieved, it would enable researchers to build on the findings of this thesis by analysing relationships between communicative and autonomous reflexivity, and other constructs such as intrinsic motivation, extrinsic motivation, and

amotivation. This would build on the evidence in this thesis and considerably deepen our knowledge of the relationships between motivations and reflexivity, and the implications of reflexivity for the quality of human experiences.

Use further quantitative research to explore which variables might influence the ways people use reflexivity.

While more qualitative work is needed throughout SDT (Ryan and Deci, 2020), there is a considerable body of quantitative evidence on the variables that typically influence a person's levels of intrinsic motivation, extrinsic motivation, and amotivation (Ryan and Deci, 2018). However, when it comes to reflexivity, although qualitative research has explored the variables that tend to influence the way people use reflexivity (Archer, 2011; Carrigan 2014; Baker 2018, 2019), there is currently very little quantitative evidence in this area. This means that there is insufficient evidence about the extent to which the patterns that have been identified via qualitative methods might be generalisable.

For example, Archer (2011: 245) attempted to "identify the distinctive natal relationships that constitute the generative mechanism of meta-reflexivity." However, despite the valuable insights that her qualitative analysis provided, Archer (2011: 245) herself noted that "the in-depth interviewing of four subjects alone permits nothing more than tentative hypotheses to be ventured." Hence, further quantitative data would be beneficial insofar as it could help us assess the extent to which the patterns identified via qualitative research (e.g., Archer, 2011) are typical of students or people in general.

Conduct research on the ways that reflexivity can be intentionally influenced.

This thesis makes some recommendations in the next section about how student reflexivity can be intentionally influenced. However, besides one paper which is discussed in the next section (Greenbank, 2010), there is no empirical evidence about how reflexivity can be intentionally influenced. Therefore, this should be a priority for future researchers in the area.

5.4 Implications of this Thesis for Student Stakeholders

The implications of this thesis and the recommendations in this section are primarily aimed at university practitioners i.e., anyone working at a university who can influence

students. However, many of the implications and recommendations in this section will be of interest to all student stakeholders, including students themselves and anybody who is interested in students and education more generally.

Why is student reflexivity important?

This thesis has demonstrated the importance of student reflexivity by presenting evidence of statistically significant relationships between different modes of reflexivity and different kinds of motivations. In light of this finding, all university practitioners and student stakeholders should be interested in student reflexivity, given that reflexivity appears to be significantly related to motivations, and given that motivations have been shown to influence human wellbeing and the quality of human experiences. Therefore, student reflexivity is important not only because it makes conscious decision-making processes possible, but because student reflexivity appears to have a bearing on the quality of student experiences.

Why are quantitative measures of reflexivity important?

The evidence in this thesis suggests that meta and fractured reflexivity can be validly and reliably measured via quantitative methods. Moreover, meta and fractured reflexivity appear to be significantly related to intrinsic and amotivation, but in opposite ways. Therefore, this thesis makes a major contribution to student experience research, because it provides some foundations upon which further research can build by analysing relationships between student reflexivity and other important variables relating to student outcomes and student backgrounds. In other words, quantitative measures of reflexivity are important not only because they make it possible to analyse relationships between reflexivity and motivations, but because they can now be used to analyse a) the variables that might be significantly influencing student reflexivity and b) the ways that student reflexivity might be influencing other variables relating to student outcomes, like grades, attendance, and retention.

Is it advisable to try and increase meta reflexivity among students?

It is important to emphasise that more meta reflexivity is not necessarily always desirable. This is because, in principle, more meta reflexivity can lead to fractured

reflexivity, given that meta reflexivity involves further self-reflection, and further self-reflection can complicate decision-making processes and make it more difficult for people to make decisions. Therefore, it is logical to assume that the more a person uses meta reflexivity, the more likely they are to experience fractured reflexivity.

However, the assumption that meta reflexivity increases the likelihood of fractured reflexivity does not necessitate the assumption that more meta reflexivity will indeed lead to fractured reflexivity, or that meta reflexivity should be avoided because it *can* lead to fractured reflexivity. On the contrary, this thesis argues that more meta reflexivity among students should, in general, be considered desirable, because the evidence in this thesis suggests that the more students tend to use meta reflexivity, the more likely they are to strongly agree that:

- they reflect on their experiences so that they can try and help other people (MR1);
- they spend a lot of time thinking about other people's emotions and situations from multiple perspectives (MR2);
- they try to live up to ethical ideals, even if it costs them to do so (MR3);
- they take time when making decisions to think carefully about multiple options and what the broader implications of them would be for other people (MR4);
- they think a lot about how to improve themselves and society (MR5); and
- when it comes to employment, the most important thing is that they have opportunities to make a difference and improve the lives of others (MR6).

Therefore, this thesis argues that, as a rule of thumb, it is worthwhile to try and increase meta reflexivity among students.

How could meta reflexivity be increased among students?

Although this thesis argues that attempts by university practitioners to increase meta reflexivity among students would be worthwhile, it was beyond the scope of this thesis to provide empirical evidence of how this could be achieved.

However, some initial suggestions can be taken from Greenbank (2010) who created activities which encourage and enable students to reflect on their own decision-making patterns by analysing case studies that are designed to help students develop their decision-making skills by considering the advantages and disadvantages of various

patterns of decision-making. Greenbank's (2010) activities give students the opportunity to draw on their personal experiences to consider the ways and extent to which factors such as their personality, modes of reflexivity, and background influence the ways they make decisions. The purpose of Greenbank's activities is to "help students become conscious of the factors influencing their own decision-making and how they can overcome barriers to changing their approach to decision-making" (Greenbank, 2010: 4).

Without undermining the merits of his suggested activities, Greenbank (2010) emphasised that practitioners should be cautious when considering the time at which to help students develop their decision-making skills. More specifically, Greenbank (2010: 4) recommended that students should be given time to settle into their studies before attempts to develop their decision-making skills are made, because "if these topics are introduced too early [then] students are less likely to fully engage with the issues raised because they will still be preoccupied with making the transition to university life." Nonetheless, Greenbank (2010) argued that it is "important to start this process with first year undergraduates because students need to start participating in employability enhancing activities at an early stage in their studies."

Although there appears to be no evidence about the efficacy of the activities proposed by Greenbank (2010), they provide a starting point for anyone interested in how meta reflexivity could be increased among students.

This thesis argues that it is always possible to increase the extent to which a person uses meta reflexivity because it is always possible to give people (and help them to find) more things to reflect on. Therefore, this thesis argues that interventions should never be designed to merely increase meta reflexivity per se, but should instead be designed to empower students to use meta reflexivity in ways that enable them to make decisions that lead them to purposeful and ethical courses of action. In this sense, one could argue that meta reflexivity interventions should ultimately be about empowering students to avoid continual fractured reflexivity and move towards an ethical form of autonomous reflexivity which involves lots of meta reflexivity.

Is it advisable to try and minimise fractured reflexivity among students?

Just as it is important to emphasise that more meta reflexivity is not always desirable, it is equally important to emphasise that fractured reflexivity is not always undesirable. On the contrary, fractured reflexivity can be considered a necessary part of intellectual

development if we assume that intellectual development can only ensue after an individual has grappled with and overcome difficult intellectual challenges which are likely to cause temporary fractured reflexivity. For example, writer's block could be considered a form of fractured reflexivity in the sense that writer's block is a situation where thinking (in this case, about what to write) can intensify our distress rather than lead us to a purposeful course of action. Therefore, if a degree of writer's block is a necessary part of the process of writing a good essay, it follows that some amount of fractured reflexivity might also be a necessary part of writing a good essay – in which case, some amount of fractured reflexivity might be necessary and desirable.

However, the assumption that *some amount of fractured reflexivity can be desirable* does not necessitate the conclusion that fractured reflexivity is desirable in general. On the contrary, this thesis argues that, although instances of *temporary* fractured reflexivity can be considered desirable – such as when a student is writing an essay – instances of *continual* fractured reflexivity are undesirable. This is because the evidence in this thesis suggests that the more students tend to experience fractured reflexivity, the more likely they are to strongly agree that:

- they feel stressed and overwhelmed when they try to think things through (FR1);
- thinking rarely leads them to a purposeful plan of action and often makes things worse (FR2); and
- they feel helpless and powerless to deal with their problems, no matter how hard they try to sort them out (FR5).

Therefore, this thesis argues that, as a rule of thumb, it is advisable to try and minimise temporary fractured reflexivity among students and empower students to avoid continual fractured reflexivity. To these ends, the content of the fractured reflexivity measures in this thesis is useful because it provides an idea of both the things to help students avoid and the signs to look out for that could indicate that a student is experiencing continual fractured reflexivity.

What could be done to minimise continual fractured reflexivity among students?

As stated above, there is currently no empirical evidence about how to influence student reflexivity; therefore, there is no evidence about how practitioners can help

students avoid continual fractured reflexivity. Nonetheless, this does not mean that there are no grounds for making suggestions. For example, if Greenbank's (2010) activities are found to be effective at empowering students to develop their decision-making skills, then it is reasonable to assume that Greenbank's activities will, therefore, be effective at empowering students to avoid continual fractured reflexivity.

It is likely that interventions to minimise fractured reflexivity will need to be tailored to the nature of the fractured reflexivity (i.e., to whatever caused the student to experience fractured reflexivity). Moreover, there can be no formular for figuring out whether personal persistence or external support is the best way forward; for example, when a student is writing an essay. This thesis argues that it is important for students to learn that it is possible to 'get through' fractured reflexivity by persisting with a task until they make a 'breakthrough'; for example, when writing an essay. However, it is also important that the appropriate support is available to students if they need it when experiencing fractured reflexivity.

Therefore, an obvious general suggestion would be to make students more aware of the various sources of support available to them and to try and make students feel empowered to actively embrace the kinds of support that will help them to set manageable goals that can be achieved via manageable plans and workloads. This thesis argues that the main reason for empowering students to avoid continual fractured reflexivity is so that they can feel empowered to make decisions that give them a sense of direction and a plan which they are intrinsically motivated to pursue. To this end, it is important to re-emphasise the need to empower meta reflexivity among students, because students will need to use meta reflexivity if they are to envision and feel optimally motivated to pursue the most ethical courses of action available to them.

5.5 Closing Remarks

The Conclusion chapter has identified strengths and limitations of this thesis, and it has articulated implications and recommendations. Therefore, this thesis can now end by reiterating its key takeaway message, which is that if we want to understand differences in student experiences of university, we should consider why students go to university and how they make decisions. That message might seem intuitively obvious to some people, but this thesis provides robust empirical evidence to support it by showing that student motivations for coming to university appear to be

significantly related to the ways that students use reflexivity to make decisions. Hence, given what we know from Self-Determination Theory about relationships between human motivations and psychological wellbeing, the evidence in this thesis suggests that student reflexivity has a significant bearing on the quality of student experiences. Student reflexivity is, therefore, worthy of more attention in academic research, and the question of 'why people go to university' is clearly an important one.

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Appendices

Appendix 1: Development Stages of the ICONI

As explained in Archer (2007), there were five main stages before the ICONI was complete:

Stage 1: Preliminary version

- 50 participants (sociology employees, campus building employees, and residents from Archer's home village) completed a pre-piloted version of the ICONI.
- "Certain questions were eliminated because they were endorsed by the vast majority. Other questions were reformulated more strongly, emphatically, or exclusively. From the above procedures a refined 24-item questionnaire was constructed for piloting proper." (Archer, 2007: 330)

Stage 2: Piloting proper

- The sampling *frame* for the pilot consisted of the 4053 employees at University of Warwick in July 2003. From this, 64 subjects were drawn randomly from sub-sets established via stratification (gender, age, socio-occupational status in accord with EPSEM [an equal probability of selection method]).
- The study was introduced as an investigation of processes of decision-making in everyday life.
- Questions were eliminated if answered the same way by more than 70% (because of their manifest lack of discriminatory power).
- Extreme scorers were asked which of their responses was most characteristic of their own internal conversations (a concept that all understood and acknowledged to be part of their everyday practice).

Stage 3: Refining the ICONI

- Following the above, a 16-item ICONI was administered to 130 new Sociology students in 2003 and factor analysis was performed on responses. There was no intention to finalise ICONI until it had been administered to a sample drawn from the general population.

- Principle axis factoring was chosen for extraction. After this, unsatisfactory items were revised and the resulting 16-item ICONI was administered to 128 Coventry residents and re-administered to the Sociology students.

Stage 4: Finalising the ICONI

- The Coventry sample was an availability sample and not fully representative, but it was the first cross-section of the local population. Responses were subjected to the following forms of statistical scrutiny:
  1) Frequency distributions (to detect if any items were non-discriminatory and needing to be deleted)
  2) After the percentages who agreed with each statement were calculated, two questions were eliminated "as serving no useful purpose."
  3) ANOVA bivariate correlations and factor analysis were applied to remaining 14 items to "ascertain how far they were producing effective, consistent and theoretically meaningful measurements and factor analysis was again undertaken." (Archer, 2007: 333).

Stage 5: The Final ICONI

- Following the above procedures, a 13-item ICONI was arrived at. Respondents results (from previous stages) were recalculated without a need for re-sampling.
- The Final ICONI accounted for 46.788% of the variance on factor analysis.
- The factor loadings "appear to meet the standards found acceptable for the use of research instruments in social psychology." (Archer, 207: 334).

Note: Archer (2007) did not report internal reliability (Cronbach's Alpha scores)

Appendix 2: Collation of Quotes about each Mode of Reflexivity [Quotes taken from Archer, 2003]

Summaries of Communicative Reflexivity	Characteristics/Dimensions of Communicative Reflexivity
Communicative Reflexivity "These are people who do indeed initiate internal dialogues in the privacy of their own minds, but that is not where they complete them. Instead, their pattern is of 'thought and talk'**. Having raised an issue intra-personally, they seek to resolve it inter-personally.** They share their problems, discuss decisions and thus externalise much of what, to other interviewees, remains intrinsically an internally deliberative process. For the 'communicative reflexive', **subsequent decisions about what to do, how to act and, ultimately, who to be, are held open to the dialogical influences of those with whom they share their concerns.** In other words, the membrane between the life of the mind and the life of the group is highly permeable and there is regular two-way trafficking between them." (Archer, 2003: 167).	"as individual people, **they all admit considerable doubt that a fully autonomous internal conversation could lead them to right action**. It is not that they suspect that it would lead them to wrong action, but rather they are profoundly unsure that internal dialogue, conducted entirely alone, could complete the process and culminate in self-resolution. Instead, the fear is that without external consultation, their internal conversations would revolve inconclusively." (Archer, 2003: 167-168). "That [mental deliberations] take place, this sub-group never denies. They plan, imagine and rehearse through self-talk, as do all others, but **are convinced that 'things never work out as they planned'**. This greater awareness of contingency itself, or of their own inability to factor all the necessary considerations into their solitary deliberations, seems to be what precipitates them to supplement their interior dialogues with exterior ones. Because **inter-personal exchanges are regarded as being more trustworthy, the consequence is to regard their own internal conversations with suspicion**, if not negativity." (Archer, 2003: 168) 'Communicative reflexivies' "share three salient characteristics which are associated with [the communicative] pattern of using consultation to complete […] their inner deliberations." "The 'communicative reflexive' needs to communicate. Low value is attached to lone thinking and there is low tolerance of one's own company." (Archer, 2003: 175) **1) "an exceptionally high degree of 'contextual continuity', compared with the other two types of reflexives." (Archer, 2003: 168).** "They must have other people with whom they can share. […] If self-mistrust prompts them to communication, then their interlocutors have to have earned the trust placed in them."" (Archer, 2003: 168) "this sub-group has shown little geographical mobility, has retained dense and intense relationships with family and friends, and maintains considerable occupational continuity with both. As interlocutors, this close circle of family and friends were 'tested and true'. Moreover, they not only knew our subject 'inside out', as the saying goes, but were closely acquainted with their past and present circumstances and intimately involved with their current contexts, because these were commonly their own too." (Archer, 2003: 168-169)

Archer (2003: 209) ventures an "entirely unsubstantiated hypothesis that the mode of 'communicative reflexivity' is not restricted to any given social class." **"'Communicative reflexivity' is a mode of mental deliberation whose exercise depends upon turning to *similar* others.** As such, it is not a fully private life of the mind, but one that exposes itself to its proximate environment. The better the inter-personal relationships involved, the broader the self-disclosure and the greater the permeability of the self to the surrounding contexts. In the process, this self-opening to similar and to familiars fosters reproductive continuity, even to the point of contextual replication. The other side of the coin is that it induces self-closure against external influences that could set in train an 'elastication' of horizons. Thus, **in the making of a 'communicative reflexive' we should not expect to find a seriously discordant family relationships or any servere**	"this trust means that **'the other' must be deemed more trustworthy than oneself**. Here, **trust means that the subject places reliance upon what the other would do in a similar situation**. For this to be possible, it must be very credible indeed that the other could find herself (or once had been) in such a situation, motivated by the same concerns and with much the same resources at her disposal." (Archer, 2003: 207). They conceive of projects "within their existing social horizons." (Archer, 2003: 207). "To remain continuous with one's initial and involuntary placement, involves the doings of an active agent; it is not the deterministic product of agential passivity. Among the small exploratory group investigated, there was plenty of evidence of the availability of enablements to social advancement, and equally much to indicate that these were voluntarily shunned." (Archer, 2003: 208) **2) "a smooth dovetailing of their multiple concerns." (Archer, 2003: 169).** "This group of six all **unequivocally designated their 'family and friends' as being their ultimate concern**, and one that greatly outdistanced other concerns in every single case. They were the only respondents to name 'people' as what they cared about most." (Archer, 2003: 169) "communicative reflexives accommodated work by **voluntarily reducing their occupational aspirations, whenever these clashed with the (perceived) needs of family and friendship.** […] Equally importantly, at the time of interview, none reported anything other than the ease with which their other concerns, particularly those of work and leisure, were harmoniously accommodated to their prime concern. […] Dovetailing is a reflexive achievement and for two respondents in particular it had been hard won through painful learning and deliberative self-monitoring." (Archer 2003: 169) 'Smooth dovetailing' of concerns played an important role in the "voluntary curtailment of ambition and thus the actual repudiation of enablements." (Archer, 2003: 208). (This is not a judgement but an explanation). **3) "a marked degree of contentment with the *modus vivendi* which [has been] established." (Archer, 2003: 169)** "This was not a failure to imagine how things could be better; indeed most were quite specific about changes in their circumstances that would improve their lot. Yet this was what was distinctive about them; **it was circumstantial change that would make a difference; rather than any form of self-change**. In this, they were utterly **unlike the 'meta-reflexives' whose questioning self-critique demanded more change in themselves than their surroundings,** even if these would ideally change too. They were also **dissimilar from the 'autonomous reflexives' who believed that constant self-monitoring always had been and always would be necessary for the achievement of their goals or meeting of their**

incidence of contextual dislocation. The maintenance of 'communicative reflexivity' depends primarily upon sustaining 'thought and talk' and, as has been seen, the constitution of the subject's on micro-unit will powerfully reinforce it by promoting a mutual *avidaya* – the joint preoccupation with the proximate. This 'comfortability' is equally inimical to an adventurous exposure to the outside world as it is to an inward withdrawal into solitude." (Archer, 2003: 209)	**commitments."** […] those who fully exemplified either 'autonomous' or 'meta-' reflexivity were, in a fundamental sense, still travellers towards a goal – the realisation of their ultimate concerns. By contrast, **the 'communicative reflexives' had fundamentally reached their objectives or, if very young, nevertheless saw the goal as being within reach.** In this **they expresses a literal self-satisfaction which, being largely devoid of pride or self-congratulation, is probably best represented as simple contentment."** (Archer, 2003: 169-170).

Summaries of Autonomous Reflexivity	Characteristics/Dimensions of Autonomous Reflexivity
Autonomous Reflexivity "**The internal conversation of 'autonomous reflexives' is precisely that**. It is the lone exercise of a mental activity, which its practitioners recognise as being internal dialogue with themselves and one which **they do not need and do not want to be supplemented by external exchanges with other people.** In other words, the life of their minds is a private domain, because to these subjects **their inner deliberations are self-sufficient.** 'Autonomous reflexives' are people who would **subscribe to the view that 'no one**	"'autonomous reflexives' **take personal responsibility for themselves and for the conclusions drawn from their own deliberations**. Since they are as infallible as the rest of us, they will often turn out to have been mistaken in the courses of action they have adopted. Indeed, this handful of interviewees provides some radical examples of wrong turnings and of re-direction during their life courses. Nevertheless, these are **their self-diagnosed errors, self-directed corrections and self-monitored revisions – all of which are grounded in a development of self-knowledge.** While these subjects will readily call in the builder, I suspect that they would share a suspicious reluctance to call upon the psychotherapist." (Archer, 2003: 210) "the 'autonomous reflexive' displays none of [the] mistrust [of the communicative] and seems **highly confident in the outcomes of his lone inner conversations.** Certainly, he often admits himself to have been wrong, but, conversely, he would not agree that he would have done any better by consulting others, and is more likely to assert that we would have fared much worse." (Archer, 2003: 211)

can know my mind as well as I do myself'. Only they can know exactly what they value, only they can define which projects constitute the pursuit of the worthwhile, and only they can design the life practices which embody such goals and then monitor them to establish whether or not these are ones with which they are able to live." (Archer, 2003: 210). "there is a hugely important difference between those agents who accommodate themselves to structures [communicative reflexives] and these people who **seek to harness structural powers to their own agential aims** [autonomous reflexives]. […] both are active agents, but the former is an agent for stability and the latter **an agent for change**." (Archer, 2003: 253)	"all 'autonomous reflexives' **declare themselves to be decisive people**, people who have no difficulty in coming to decisions." (Archer, 2003: 211). "all members of this sub-group declared that they **devote [a significant amount of time] to inner dialogue** […] and they engage in many more of the types of mental activities (from the prompt list) than was the case for the 'communicative reflexives'". (Archer, 2003: 211) "'Autonomous reflexives' are **economically articulate**'. (Archer, 2003: 211) "**Confident in their self-knowledge**, they quickly delivered decisive responses, hardly ever availing themselves of my invitation to take as much time as they needed to formulate their replies. Moreover, they responded in the form of self-contained statements which usually lacked those final, interrogative 'isn't its', by which the 'communicative reflexive' sought confirmation or conversational engagement from me, as interviewer. […] It would thus be very difficult to attribute **their common pattern of response – quick, clear and decisive** – to social class origins, elaborated language code, or educational level." (Archer, 2003: 211) "Three features, in particular, set them apart from the 'communicative reflexives'" (Archer, 2003: 211) "**they know what they want in society and formulate clear projects to achieve it**". (Archer, 2003: 252) "'Autonomous reflexives' attempt to promote what they care about most. More than those with any other mode of reflexivity, **these are people who both know what they want and also know a good deal about how to go about getting it. They do so strategically**, as agents who endorse the life-politics of the possible." (Archer, 2003: 254). "Not only do **'autonomous reflexives' know more about society, but they also become more expert in understanding its workings.** Constraints and enablements cease to be forces like the weather, but become powers towards which an active agent can take a strategic stance." (Archer, 2003: 253) "Through the inner conversation, 'autonomous reflexives' begin to **anticipate the constraints that their refined projects are likely to encounter and the enablements that may assist them**. This is not passive knowledge but strategic information, which they use. As their experience expands and deepens, what **they**

	increasingly deliberate about are strategies for riding the enablements and for circumventing the constraints, in order to achieve their aims. (Archer, 2003: 253) "to call 'autonomous reflexives' strategists no more implies that they possess great strategic virtuosity than does the fact that someone is called a military strategist." (Archer, 2003: 253) 1) "'the autonomous reflexives' had **all shown a readiness (if not desire) to move away from their initial context of involuntary placement**. In any case, the **backgrounds of most had been much more discontinuous**. […] "Thus a dense and continuous network of family and friends was absent from the backgrounds of all but one member of the sub-group (who volunteered nothing on this matter)." (Archer, 2003: 212) "Each and every one of them had early on (that is, before twenty-one for all, and much earlier for most) **either sought to distance themselves, or accepted with equanimity that they were distancing themselves, from their initial context of involuntary placement**. In no sense did this spell 'bad-family relations', indeed all spoke quite warmly about their parents. It was rather that **these people had conceived of projects whose realisation would firmly separate them from their initial context and would also represent a socio-economic break with it**." (Archer, 2003: 212) "to pursue a 'transformatory' project is also likely to activate social constraints and enablements. Among 'autonomous reflexives' it is thus unsurprising that **considerably more of their internal conversation is about society – about the means, the 'costs' and the 'benefits' of seeking to realise one's ultimate concerns within it.**" (Archer, 2003: 212) "Unlike the 'communicative reflexives', who remained faithful to a single project over their life-courses, and one which entailed a voluntary curtailment of their aspirations, **the lives of the 'autonomous reflexives' were considerably more eventful.** […] In short, **their life-courses were much more varied and this had entailed a more intensive internal scrutiny of their ultimate concerns**." (Archer, 2003: 213) 2) "The second feature which characterises the 'autonomous reflexives' is one which they share with the 'communicative reflexives', but not with the 'meta-reflexives', namely an unproblematic dovetailing of their concerns." […]"Autonomous reflexives' also **achieve the same unproblematic dovetailing**, but do so in relation to a totally different ultimate concern and by use of a quite

	different method. For all in this sub-group, '**work' was their priority (as a matter of fact, rather than of necessity).** Therefore inter-personal relations have to be subordinated to this ultimate concern. This is not done inconsiderately, because all members of the sub-group struggle to elaborate an accommodative 'ethic of fairness', which gives other people their due, whilst protecting their own ultimate concern. In so doing, **they are probably harder on themselves than on others**; they tend to go the extra miles to ensure that both concerns are served, but in due order. Other concerns, which are not defined as responsibilities, are given short shrift. These are not people who place much of a premium on hobbies, holidays or homes or gardens. Indeed, their own physical well-being is often rigorously subordinated, until it has to be given a modicum of attention lest its deterioration threatens the dovetailing achieved." (2003: 213). 3) "**The third common feature is individualism**, with all its most salient connotations. These are **independent people, whose self-sufficiency makes each of them something of a 'loner'**, regardless of whether they are married or, in one case, a member of a religious order. What this means quintessentially is that **they are not dependent on others**, and this is reflected in the form of *modus vivendi* which they find satisfying and sustainable; not for them the simple contentment which the 'communicative reflexives' derive from their familial conviviality. Next, they are **philosophical individualists in their profound belief that they, and everyone else, must take personal responsibility for themselves.** To be such entails disciplined self-monitoring, for the subject alone assumes responsibility for the projects which he has embraced and for living with the outcomes, but it does not involve self-doubt. It is congruent with such individualism that three of the five interviewees were self-employed or worked alone. Finally, **they also show a marked tendency towards political individualism**. Personally, they can be all generous, charitable and compassionate, but this is a voluntary giving to other individuals; it is not a policy that they believe it would be beneficial to institutionalise. (Archer, 2003: 213-214)

Summaries of Meta-Reflexivity	Statements/Dimensions of Meta Reflexivity
Meta-reflexivity "'Meta-reflexivity sounds like a complicated activity, but it is one that **every normal human being practices, at least on occasion**. It **entails being reflexive about our own acts of reflexivity**. Much of the internal conversation consists in asking ourselves questions and answering them.	A meta-reflexive is more of an idealist and subversive, whereas an autonomous is more an instrumentalist and strategic. 295. "Unlike the 'communicative reflexives', who sought to extend their 'thought and talk' pattern into the interview itself and to engage me for the completion of

Thus, in 'primary' reflexivity, we may ask ourselves what date it is today, and supply an answer. The subject who proposes that 'the date is 8 May', might, upon hearing this (as object), then have her doubts – and an internal discussion can ensue. Here, what she is bending back upon is her own utterance. In this case it is a proposition which she has heard herself enunciate. Yet, on hearing it, she doubts its truth for some reason. The ensuing internal conversation is about the proposition and is an internal attempt to establish the correct date. However, she can also ask herself, 'why was I a day out?' – and perhaps provide the answer, 'you always get confused when there's been a Bank Holiday'. This is an exercise of meta-reflexivity; **the internal conversation is not about the proposition itself but why she herself uttered it**." (Archer, 2003: 255)

"'Meta-reflexivity' can be about the trivial or the profound, just as any act of 'primary' reflexivity may be. Equally, those who engage in a great deal of 'meta-reflexive' thinking do not necessarily possess a 'profundity', which sets them apart from other people. There is nothing 'deeper' in someone asserting, 'I know I miss regular dental check-ups because I'm afraid of going to the dentist', than Angie saying, 'I like it here, so would my friend, we must come together.' The former, if correct, demonstrates knowledge of one's self, the latter, if correct, demonstrates knowledge of another." (Archer, 2003: 255)

"**All acts of self-monitoring are acts of 'meta-reflexivity'**. Often these are task-oriented, as has been seen [with Communicative and Autonomous reflexivity chapters]. The type of 'meta-reflexivity' examined here is different; it is **'self-oriented'** – **the subject is internally conversing with herself and not about her external actions**. 'Meta-reflexivity is something that some people practice a great deal more than others". (Archer, 2003: 256)

their thoughts, '**meta-reflexives' tended to withdraw into self-interrogation**. Withdrawal could sometimes be literal, for **members of this sub-group alone availed themselves of the invitation to pause and think over their responses**". […] [They] **represented a huge contrast with the brevity, economy and readiness of responses made by 'autonomous reflexives**." (Archer, 2003: 256)

"The two men had doctorates and the two women either a higher degree of multiple forms of postgraduate training." (Archer, 2003: 256)

"'Meta-reflexives **share exactly the same objective 'contextual discontinuity' with the 'autonomous reflexives'**. [However], both structurally and agential, **they now stand in a very different relationship to society from that of the 'autonomous reflexive'**.

On the one hand, no available context is such that they can embrace it uncritically and lastingly. Generically **they are 'contextually unsettled'**, internally they ask themselves why, and uniformly **they produce a critique of both self and society and, above all, of the relations between them**. Hence, 'meta-reflexives' are not firmly rooted in a context, as is witnessed by their combined patterns of geographical (even inter-continental) mobility, job changes, career shifts, professional re-training, and the progressive diversification of their skills. 'Meta-reflexives' were themselves responsible for weaving a goodly part of this unsettled pattern." (Archer, 2003: 257-258)

"'Meta-reflexives' are not good at permanent 'rooting; because there is always (eventually) something, if not many things, that they find wanting, undesirable or deleterious about a given context, which generally impedes the full expression of who they want to be. Because they are not entirely intra-punitive, **'meta-reflexives' are among society's critics**, not only in relation to their own pre-occupations but also in terms of distributive injustice. This does not make them political activists, though all have had their political moments. Rather, there is a **deep concern for the underdog, the oppressed, and the globally deprived.** This means they care about present 'victims', instead of engaging in revolutionary political to give jam to everyone tomorrow." (Archer, 2003: 208)

	1) "On the other hand, as agents, **'meta-reflexives' are idealists.** Sooner for some than for others, they were all drawn to an ideal, which they wished to express in and through their own lives. **These are people with a vocation (or in search of one) in which they can invest themselves and which is expressive of their ideal**. As idealists, they experience a constant tension between structure and culture. No existing social arrangements approximate to their ideal, nor ultimately does any institution or organisation to which they are vocationally drawn. 2) This is what makes them **social critics.** Simultaneously, **their ideal makes them critical of themselves as persons and critical of the lives they lead.**" (Archer, 2003: 258) 3) "'meta-reflexives' **have difficulties with dovetailing their concerns**, unlike [communicative and autonomous reflexives]". They want their involvements in the three orders of natural reality to be aligned to their ideal, which is their ultimate concern. There basic problem is that these keep slipping out of alignment. As subjects, they will go through a great deal of soul-searching about why this should be the case, and how they can manage themselves and their comportment to establish the harmony which they seek. Yet, sometimes they have to conclude that no amount of self-awareness or self-improvement can suffice." (Archer, 2003: 258) "the 'meta-reflexive' **has the greatest difficulties, during his or her life-course, in completing the sequence, "concerns -> projects -> practices**, to his or her own satisfaction. Their practices will change considerably and so, more reluctantly, will their projects, but not their ultimate concerns." (Archer, 2003: 258-259) "'Meta-reflexives' are **idealists ever seeking a better fit between who they seek to be and a social environment which permits their expression of it**. This

	environment is something which they need, for they **are equally incapable of the lone individualism characteristic of the 'autonomous reflexives', or the uncritical traditionalism of the 'communicative reflexive'**. Instead, they are idealists, ever in search of a creative symbiosis between 'self' and 'society'; one which nurtures the best qualities of the 'self', but which simultaneously translates these values into an external social environment – however modest it may be. […] this means that the 'meta-reflexive' has a relationship to social constraints and enablements which is quite different from either of the sub-groups [communicative and autonomous] examined thus far." (Archer, 2003: 259) "they will always forgo a sustainable *modus vivendi* because neither the self, nor society, nor relations between them can ever be evaluated as satisfying, let alone satisfactory – that is, worthy of being sustained." (Archer, 2003: 297)

Summaries of Fractured Reflexivity	Statements/Dimensions of Fractured Reflexivity
Fractured Reflexivity Internal conversation is the process through which people can mediate the effects of structure upon agency. "However, such mediation depends upon agents exerting their personal powers to formulate projects and to monitor both self and society in the pursuit of their designs." Some are unable to do this. (Archer, 2003: 298) Fractured reflexives are (**currently) unable "to hold an internal conversation about themselves in relation to their circumstances, which has any efficacy.** It is not that these people are incapable of inner dialogue, for […] they do indeed engage in internal conversation. It is rather that **their self-talk provides them with no instrumental guidance about what to do in practice**. The reason for this is that **their inner conversations are predominately expressive.** They are too exclusively affective to be practically effective. However, there is no reason to assume that this is a permanent condition. That was why the term 'fractured' was adopted, because 'fractures' can be mended. That was also the reason for employing those rough linguistic analogies, because most people can learn new languages or increase their level of proficiency in a given language. In other words, these subject are 'fractured reflexives' now, at the point of interview, when 'impediment' or 'displacement' profoundly undermines their subjective orientation towards both self and society. To be 'impeded' or 'displaced' also undermines the objective abilities of these subjects to monitor their circumstances with any degree of mastery. Nevertheless, there is nothing *in principle* that condemns them in perpetuity to this condition. (Archer, 2003: 298-299) "[There] are people who can help certain things happen, especially ones that matter to them a great deal, rather than people to whom things merely happen. The latter defines a 'passive agent'. 'Passive agents' are **people whose subjectivity makes no difference to the play of objective circumstances upon them.** Their mental activities (whose existence is not	"What distinguishes the 'fractured reflexive' is that **his or her internal conversation has no instrumental orientation at all.** Their inner dialogue does not work as a guide to action. It supplies the subject with no orientation towards the question, 'what is to be done'. Instead of leading to purposeful courses of action, the self-talk of the 'fractured reflexive' is primarily expressive. **Its effect is to intensify affect**. It leads the subject to feel an ever more poignant emotional distress about her condition. I have argued elsewhere that our emotions are commentaries upon our concerns. Although this is indeed the case here, what transpires is that the 'fractured' subject merely dwells with increasing misery and frustration upon the impossibility of realising any of his or her own concerns. **Their internal conversations simply do not work for them – by enabling subjects to propose courses of action to themselves.** Instead, **their inner dialogues go round in inconclusive circles, which increase the subjects' disorientation.** These people may hark back nostalgically to what once was, which merely intensifies the subject's sense of loss; or they grasp in desperation at unrealistic projects, without requisite self-knowledge or societal-knowledge to translate these into feasible courses of action – which then augments both their distress and disorientation. Why does this occur? Here, I believe that it is crucial to resist reduction to psychological explanations, that is to accounts which are cast exclusively in terms of individual pathology. […] 'Fractured reflexivity' is a broader phenomenon, whose origins cannot be identified reductively." (Archer, 2003: 303-304) "'fractured reflexives' had the greatest difficulty, at the point of interview, in articulating [a constellation of concerns]. A subject's precise constellation of concerns is what gives him or her strict personal identity. All 'fractured reflexives' had problems in defining such a relatively durable configuration." (Archer, 2003: 304)

denied) perform no mediatory role for them; they permit of no intentional relationship between self and society. In short, they make no difference. The main argument, developed in this chapter, is that '**fractured reflexives' are 'passive agents'."** (Archer, 2003: 299-300)	Archer (2003: 305) examined three shared characteristics of people who have been grouped together as 'fractured reflexives': 1) "An inner conversation which generates only affective responses, and thus does not work as a guide to purposeful (i.e. instrumental) action." 2) "An absence of strict personal identity, which precludes the prioritisation and accommodation of concerns and thus blocks the formation of projects (hence precluding the sequence, 'concerns' —> 'projects' —> 'practices')." 3) "A resignation to agential passivity."

Appendix 3: Preliminary Analysis of Reflexivity Measures

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.771
Bartlett's Test of Sphericity	Approx. Chi-Square	1748.423
	df	210
	Sig.	.000

Note: The Correlation Matrix is not presented here because it was far too big to be presented effectively in a word document. It is stored in its original SPSS output file, which anyone can see by contacting Richard Remelie (r.remelie@mmu.ac.uk).

Appendix 4: Exploratory Factor Analysis of Reflexivity Measures

Factor Analysis (FA) of Reflexivity Measures

Communalities

	Initial	Extraction
'Before making decisions, I like to check what other people think I should do.'	.307	.487
'Being decisive comes easily to me.'	.252	.208
I reflect on my experiences so that I can try and help other people.	.364	.423
I know myself very well and am confident in my ability to be self-reliant.	.411	.545
I try to live up to ethical ideals, even if it costs me to do so.	.231	.258
When I try to think things through, I usually end up feeling stressed and overwhelmed.	.431	.447
I put family and close friends before everything else.	.273	.374
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.321	.337
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	.376	.443
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	.420	.605
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.515	.637
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	.326	.350
I currently have no idea of what I want to do or who I want to be.	.494	.483
I have a good idea of where I want to be in the future and how I can get there.	.516	.961
I think a lot about how to improve myself and society.	.387	.413
I usually trust the judgement of others more than my own.	.288	.327
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	.380	.460
I have no idea what to prioritise at the minute.	.350	.387
I am happy with the way things are in my life.	.303	.306
Building an independent life for myself is more important to me than staying where my family and close friends are.	.231	.361

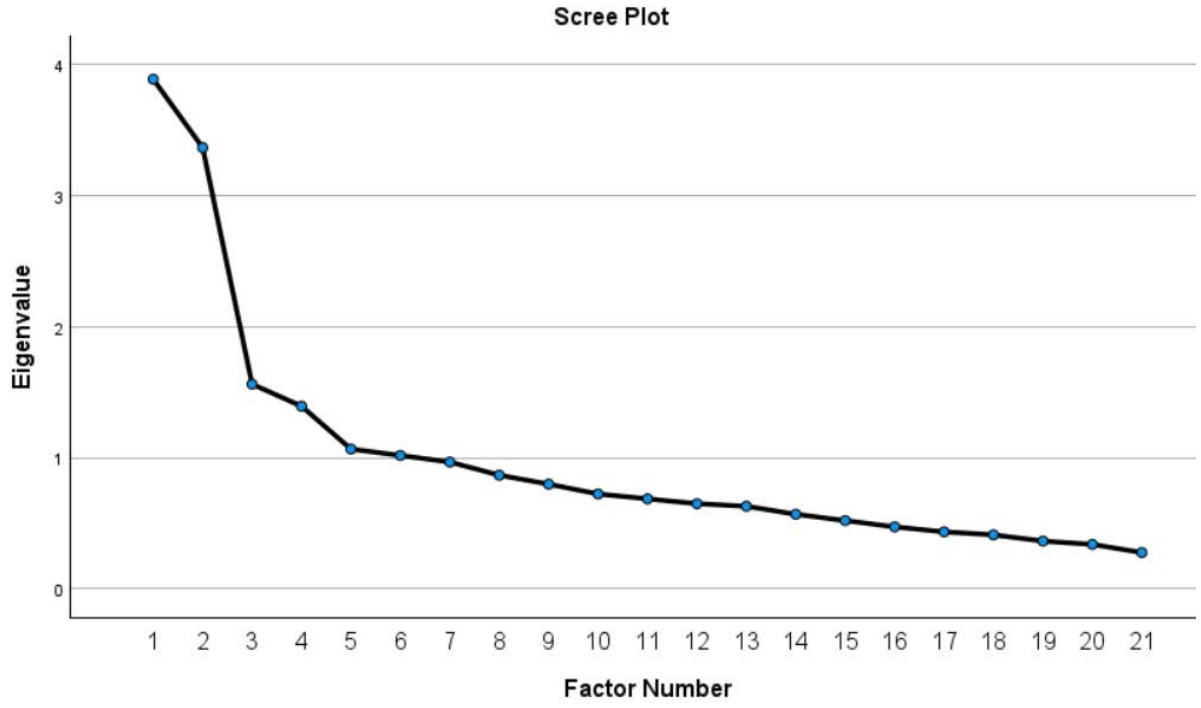
My ideas of how society ought to be are always frustratingly different from how things actually are.	.236	.336

Extraction Method: Principal Axis Factoring.

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.889	18.518	18.518	3.385	16.118	16.118	2.629	12.518	12.518
2	3.367	16.032	34.550	2.779	13.235	29.353	1.622	7.723	20.241
3	1.562	7.436	41.986	1.136	5.407	34.761	1.527	7.273	27.513
4	1.393	6.634	48.621	.901	4.290	39.050	1.381	6.578	34.091
5	1.066	5.076	53.697	.511	2.433	41.483	1.236	5.886	39.977
6	1.017	4.844	58.541	.437	2.080	43.563	.753	3.586	43.563
7	.967	4.605	63.147						
8	.867	4.128	67.274						
9	.798	3.802	71.076						
10	.723	3.445	74.521						
11	.686	3.268	77.789						
12	.649	3.091	80.880						
13	.630	2.999	83.879						
14	.569	2.708	86.587						
15	.520	2.478	89.064						
16	.472	2.249	91.313						
17	.434	2.068	93.381						
18	.411	1.959	95.340						
19	.364	1.732	97.072						
20	.339	1.613	98.685						
21	.276	1.315	100.000						

Extraction Method: Principal Axis Factoring.



Rotated Factor Matrix[a]

	Factor					
	1	2	3	4	5	6
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	.647	-.075	.143	.056	-.103	.036
I reflect on my experiences so that I can try and help other people.	.637	.097	.071	-.008	-.037	.043
I think a lot about how to improve myself and society.	.592	-.024	.105	.032	.000	.225
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	.585	.020	.000	.068	.289	-.109
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	.511	.089	.102	-.070	.251	-.048
I put family and close friends before everything else.	.459	.140	-.106	.176	.164	-.273
I try to live up to ethical ideals, even if it costs me to do so.	.418	-.037	-.026	-.224	.023	.174
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.418	.328	.020	-.044	-.072	.216

My ideas of how society ought to be are always frustratingly different from how things actually are.	.392	-.305	-.059	.063	-.134	.254
I know myself very well and am confident in my ability to be self-reliant.	.112	.615	.076	-.144	-.241	.262
I am happy with the way things are in my life.	.043	.486	.136	-.221	.005	-.008
I have no idea what to prioritise at the minute.	.022	-.435	-.292	.127	.260	.168
‘Being decisive comes easily to me.’	.034	.324	.077	-.112	-.278	.082
I have a good idea of where I want to be in the future and how I can get there.	.124	.137	.953	.011	-.062	.125
I currently have no idea of what I want to do or who I want to be.	-.142	-.186	-.628	.136	.098	.077
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	-.060	-.190	-.034	.733	.166	.001
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.039	-.470	-.077	.617	.161	-.044
When I try to think things through, I usually end up feeling stressed and overwhelmed.	.198	-.314	-.172	.441	.288	.045
‘Before making decisions, I like to check what other people think I should do.’	.158	-.102	-.068	.097	.660	-.044

I usually trust the judgement of others more than my own.	-.029	-.186	-.076	.206	.480	-.112
Building an independent life for myself is more important to me than staying where my family and close friends are.	.122	.115	-.001	.001	-.089	.571

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 10 iterations.

Factor Transformation Matrix

Factor	1	2	3	4	5	6
1	-.213	-.599	-.428	.481	.399	-.146
2	.932	-.091	.089	.200	.254	.105
3	.184	.115	-.867	-.359	-.143	.228
4	-.019	-.367	.089	.303	-.596	.640
5	-.072	.690	-.186	.690	-.002	.090
6	-.217	.097	.121	-.177	.633	.705

Extraction Method: Principal Axis Factoring.
Rotation Method: Varimax with Kaiser Normalization.

Principal Components Analysis (PCA) of Reflexivity Measures

Communalities

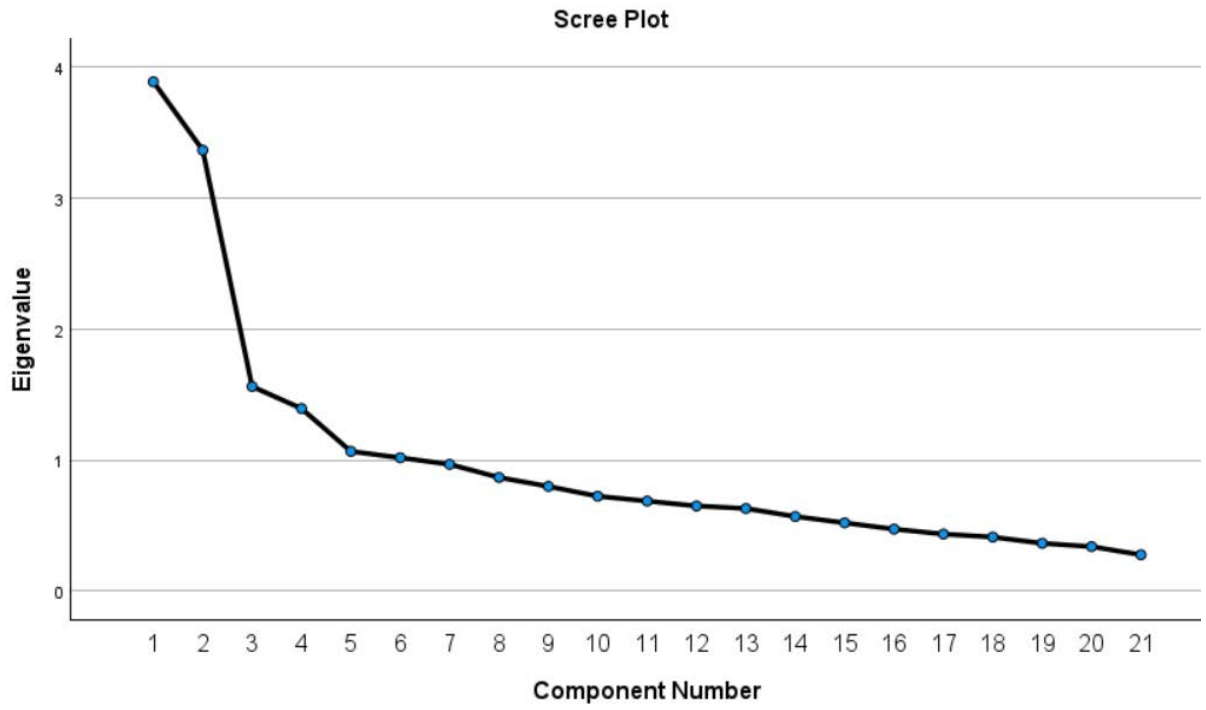
	Initial	Extraction
'Before making decisions, I like to check what other people think I should do.'	1.000	.581
'Being decisive comes easily to me.'	1.000	.478
I reflect on my experiences so that I can try and help other people.	1.000	.513
I know myself very well and am confident in my ability to be self-reliant.	1.000	.608
I try to live up to ethical ideals, even if it costs me to do so.	1.000	.535
When I try to think things through, I usually end up feeling stressed and overwhelmed.	1.000	.570
I put family and close friends before everything else.	1.000	.599
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	1.000	.518
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	1.000	.542
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	1.000	.714
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	1.000	.707
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	1.000	.483
I currently have no idea of what I want to do or who I want to be.	1.000	.746
I have a good idea of where I want to be in the future and how I can get there.	1.000	.813
I think a lot about how to improve myself and society.	1.000	.511
I usually trust the judgement of others more than my own.	1.000	.449
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	1.000	.575
I have no idea what to prioritise at the minute.	1.000	.508
I am happy with the way things are in my life.	1.000	.494
Building an independent life for myself is more important to me than staying where my family and close friends are.	1.000	.819
My ideas of how society ought to be are always frustratingly different from how things actually are.	1.000	.532

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.889	18.518	18.518	3.889	18.518	18.518	3.147	14.988	14.988
2	3.367	16.032	34.550	3.367	16.032	34.550	2.110	10.047	25.035
3	1.562	7.436	41.986	1.562	7.436	41.986	2.066	9.836	34.871
4	1.393	6.634	48.621	1.393	6.634	48.621	1.888	8.990	43.861
5	1.066	5.076	53.697	1.066	5.076	53.697	1.638	7.801	51.662
6	1.017	4.844	58.541	1.017	4.844	58.541	1.445	6.880	58.541
7	.967	4.605	63.147						
8	.867	4.128	67.274						
9	.798	3.802	71.076						
10	.723	3.445	74.521						
11	.686	3.268	77.789						
12	.649	3.091	80.880						
13	.630	2.999	83.879						
14	.569	2.708	86.587						
15	.520	2.478	89.064						
16	.472	2.249	91.313						
17	.434	2.068	93.381						
18	.411	1.959	95.340						
19	.364	1.732	97.072						
20	.339	1.613	98.685						
21	.276	1.315	100.000						

Extraction Method: Principal Component Analysis.



Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
I reflect on my experiences so that I can try and help other people.	.687	-.122	-.021	-.089	.068	.117
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	.671	.299	.022	-.001	-.041	-.015
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	.653	-.126	.051	-.204	.298	.005
I put family and close friends before everything else.	.634	.025	.213	.188	-.281	-.191
I think a lot about how to improve myself and society.	.610	-.064	.001	-.128	.287	.188
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	.599	.274	-.139	-.140	-.093	.032
'Before making decisions, I like to check what other people think I should do.'	.249	.694	.089	.110	-.126	-.029
'Being decisive comes easily to me.'	.121	-.652	-.085	-.006	-.176	-.004

I usually trust the judgement of others more than my own.	.045	.569	.273	.121	-.112	-.144
I know myself very well and am confident in my ability to be self-reliant.	.163	-.493	-.234	-.073	-.357	.388
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	-.017	.157	.827	.042	.056	.008
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.041	.240	.717	.105	.316	-.149
When I try to think things through, I usually end up feeling stressed and overwhelmed.	.198	.386	.542	.192	.204	.098
I try to live up to ethical ideals, even if it costs me to do so.	.421	.077	-.463	.059	.351	.104
I have a good idea of where I want to be in the future and how I can get there.	.123	-.096	-.005	-.881	-.033	.106
I currently have no idea of what I want to do or who I want to be.	-.125	.066	.143	.835	.091	.019
I have no idea what to prioritise at the minute.	-.014	.373	.137	.425	.411	.032
My ideas of how society ought to be are always frustratingly different from how things actually are.	.312	-.088	.072	.056	.620	.185
I am happy with the way things are in my life.	.118	-.099	-.306	-.152	-.559	.202

Building an independent life for myself is more important to me than staying where my family and close friends are.	-.017	-.025	-.009	-.041	.121	.895
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.447	-.168	-.092	-.020	-.168	.503

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 19 iterations.

Component Transformation Matrix

Component	1	2	3	4	5	6
1	-.220	.551	.556	.440	.271	-.269
2	.916	.234	.142	-.058	.234	.166
3	-.109	-.376	-.086	.461	.608	.507
4	.190	.189	-.501	.710	-.412	-.056
5	.015	-.168	.583	.159	-.577	.524
6	-.254	.660	-.271	-.246	.008	.604

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

Appendix 5: Internal Reliability Tests for Reflexivity Measures

Meta Reflexivity (MR1, MR2, MR3, MR4, MR5, MR6)

Case Processing Summary

		N	%
Cases	Valid	327	97.3
	Excluded[a]	9	2.7
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.737	.739	6

Inter-Item Correlation Matrix

	When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	I reflect on my experiences so that I can try and help other people.	I think a lot about how to improve myself and society.	I spend a lot of time thinking about other people' s emotions and situations from multiple perspectives.	When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	I try to live up to ethical ideals, even if it costs me to do so.
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	1.000	.455	.447	.301	.282	.266
I reflect on my experiences so that I can try and help other people.	.455	1.000	.362	.343	.353	.225
I think a lot about how to improve myself and society.	.447	.362	1.000	.306	.349	.292
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	.301	.343	.306	1.000	.430	.239
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	.282	.353	.349	.430	1.000	.154
I try to live up to ethical ideals, even if it costs me to do so.	.266	.225	.292	.239	.154	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	20.4954	20.766	.520	.317	.687
I reflect on my experiences so that I can try and help other people.	20.4679	21.084	.519	.295	.688
I think a lot about how to improve myself and society.	20.7737	20.354	.524	.294	.685
I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.	20.5596	19.873	.482	.258	.697
When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	21.0612	20.573	.467	.264	.701
I try to live up to ethical ideals, even if it costs me to do so.	20.9541	22.461	.335	.128	.737

Fractured Reflexivity (FR1, FR2, FR5)

Case Processing Summary

		N	%
Cases	Valid	332	98.8
	Excluded[a]	4	1.2
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.741	.742	3

Inter-Item Correlation Matrix

	Thinking rarely leads me to a purposeful plan of action and often makes things worse.	I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	When I try to think things through, I usually end up feeling stressed and overwhelmed.
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	1.000	.550	.437
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	.550	1.000	.480
When I try to think things through, I usually end up feeling stressed and overwhelmed.	.437	.480	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Thinking rarely leads me to a purposeful plan of action and often makes things worse.	6.1657	7.921	.573	.341	.649
I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	6.3042	7.523	.607	.374	.608
When I try to think things through, I usually end up feeling stressed and overwhelmed.	4.7349	7.984	.521	.273	.710

Appendix 6: Preliminary Analysis of Motivation Measures

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	2259.419
	df	136
	Sig.	.000

Note: The Correlation Matrix is not presented here because it was far too big to be presented effectively in a word document. It is stored in its original SPSS output file, which anyone can see by contacting Richard Remelie (r.remelie@mmu.ac.uk).

Appendix 7: Exploratory Factor Analysis of Motivation Measures

Factor Analysis of Motivation Measures

Communalities

	Initial	Extraction
I come to university so that I can get a well-paid job at the end.	.457	.553
I come to university because I genuinely love to learn.	.520	.542
I come to university because I want to show that I am capable of completing a degree.	.368	.401
I come to university because it will prepare me for a career that I have in mind.	.501	.592
I come to university because I am fascinated by my subject and I want to spend time studying it.	.666	.745
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	.665	.722
I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	.215	.244
I come to university because I really enjoy the challenge.	.385	.382
I come to university because it will help me to find a job that I enjoy.	.536	.652
I come to university because success here will make me feel much better about myself.	.513	.743
I come to university because I really want to grow as a person.	.488	.477
Honestly, I do not know - I feel like I am wasting my time at university.	.638	.770

I come to university because it will make me more employable.	.355	.408
I do not feel interested in university and I wonder whether I should continue.	.614	.688
I come to university because I really enjoy meeting new people and socialising.	.239	.435
I come to university because I do not know what else to do.	.323	.377
I come to university because it gives me opportunities to do things that interest me.	.489	.599

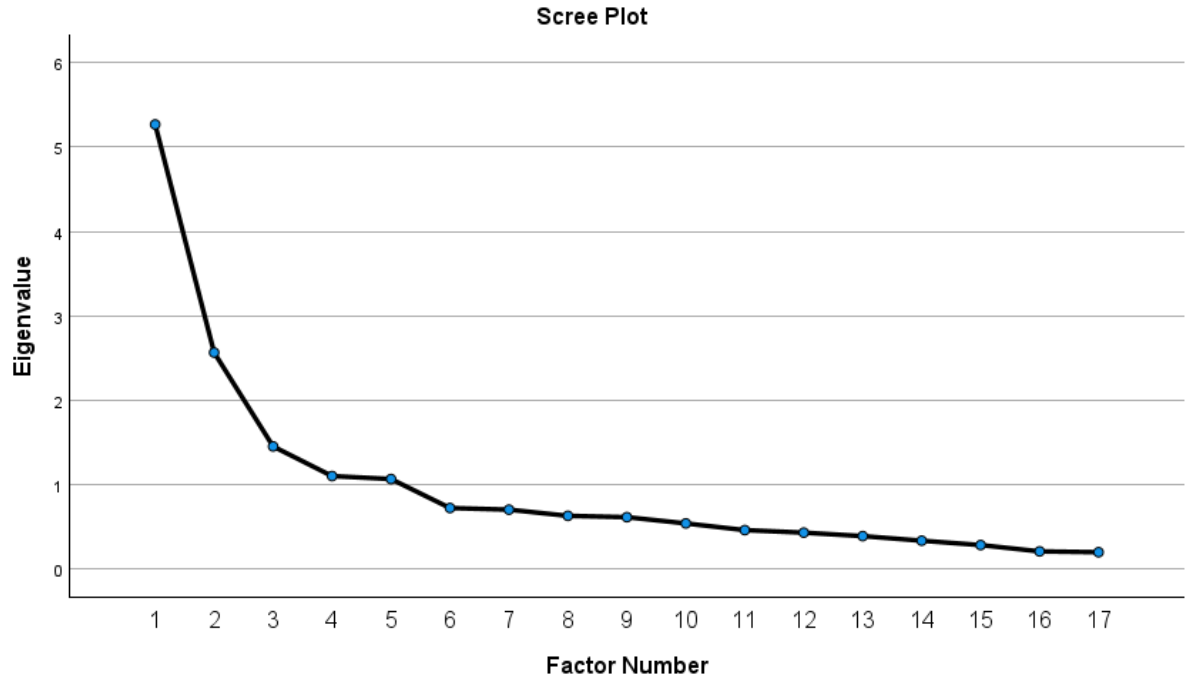
Extraction Method: Principal Axis Factoring.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.269	30.996	30.996	4.863	28.604	28.604	3.678
2	2.566	15.097	46.093	2.119	12.464	41.068	2.607
3	1.454	8.555	54.647	1.069	6.290	47.357	3.267
4	1.103	6.487	61.135	.704	4.141	51.498	2.317
5	1.068	6.282	67.417	.575	3.379	54.878	1.646
6	.724	4.261	71.678				
7	.705	4.147	75.825				
8	.632	3.716	79.541				
9	.616	3.622	83.163				
10	.542	3.189	86.352				
11	.463	2.721	89.073				
12	.432	2.544	91.617				
13	.392	2.303	93.920				
14	.337	1.983	95.903				
15	.285	1.678	97.582				
16	.211	1.238	98.820				
17	.201	1.180	100.000				

Extraction Method: Principal Axis Factoring.

a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.


Scree Plot
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Factor Number

Pattern Matrix[a]

	Factor				
	1	2	3	4	5
I come to university because I am fascinated by my subject and I want to spend time studying it.	.852	-.013	-.055	.072	-.002
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	.813	-.006	.041	.023	.150
I come to university because I genuinely love to learn.	.712	.012	-.011	-.100	-.022
I come to university because I really enjoy the challenge.	.466	-.073	-.068	-.188	.046
Honestly, I do not know - I feel like I am wasting my time at university.	.073	.880	.060	.112	-.089
I do not feel interested in university and I wonder whether I should continue.	.006	.826	-.037	.160	-.089
I come to university because I do not know what else to do.	-.200	.503	.059	-.086	.146
I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	.006	.437	-.029	-.173	.022
I come to university because it will help me to find a job that I enjoy.	.007	-.076	-.779	-.001	.035
I come to university because it will prepare me for a career that I have in mind.	.157	-.095	-.732	.170	-.022
I come to university so that I can get a well-paid job at the end.	-.049	.094	-.727	-.095	-.038
I come to university because it will make me more employable.	-.119	.093	-.459	-.256	.143

I come to university because success here will make me feel much better about myself.	-.023	-.016	-.075	-.851	-.091
I come to university because I really want to grow as a person.	.167	-.176	-.076	-.491	.162
I come to university because I want to show that I am capable of completing a degree.	.251	.141	-.061	-.482	-.014
I come to university because I really enjoy meeting new people and socialising.	.027	.009	.017	.070	.669
I come to university because it gives me opportunities to do things that interest me.	.268	-.162	-.211	-.025	.457

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 9 iterations.

Factor Correlation Matrix

Factor	1	2	3	4	5
1	1.000	-.369	-.384	-.232	.289
2	-.369	1.000	.141	-.155	-.168
3	-.384	.141	1.000	.437	-.284
4	-.232	-.155	.437	1.000	-.215
5	.289	-.168	-.284	-.215	1.000

Extraction Method: Principal Axis Factoring.
Rotation Method: Oblimin with Kaiser Normalization.

Principal Components Analysis of Motivation Measures

Communalities

	Initial	Extraction
I come to university so that I can get a well-paid job at the end.	1.000	.694
I come to university because I genuinely love to learn.	1.000	.680
I come to university because I want to show that I am capable of completing a degree.	1.000	.585
I come to university because it will prepare me for a career that I have in mind.	1.000	.729
I come to university because I am fascinated by my subject and I want to spend time studying it.	1.000	.774
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	1.000	.767
I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	1.000	.438
I come to university because I really enjoy the challenge.	1.000	.499
I come to university because it will help me to find a job that I enjoy.	1.000	.728
I come to university because success here will make me feel much better about myself.	1.000	.773
I come to university because I really want to grow as a person.	1.000	.629
Honestly, I do not know - I feel like I am wasting my time at university.	1.000	.778

I come to university because it will make me more employable.	1.000	.565
I do not feel interested in university and I wonder whether I should continue.	1.000	.751
I come to university because I really enjoy meeting new people and socialising.	1.000	.835
I come to university because I do not know what else to do.	1.000	.569
I come to university because it gives me opportunities to do things that interest me.	1.000	.667

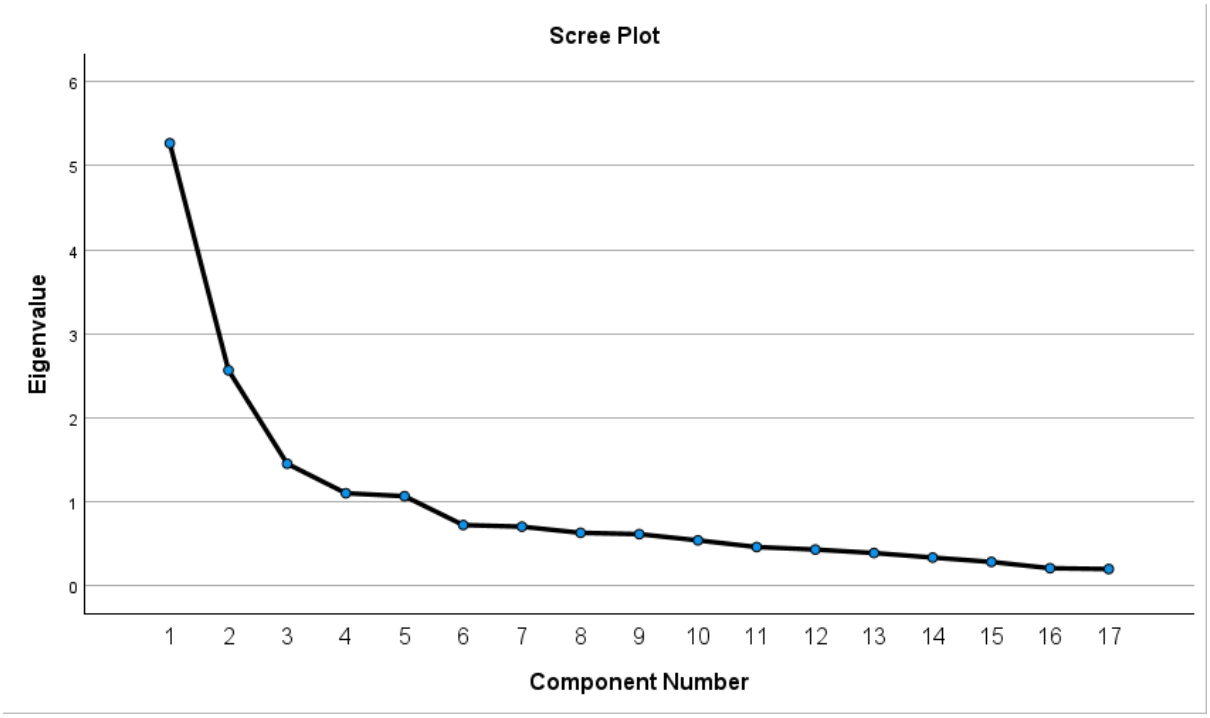
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.269	30.996	30.996	5.269	30.996	30.996	3.904
2	2.566	15.097	46.093	2.566	15.097	46.093	2.924
3	1.454	8.555	54.647	1.454	8.555	54.647	3.443
4	1.103	6.487	61.135	1.103	6.487	61.135	1.807
5	1.068	6.282	67.417	1.068	6.282	67.417	2.708
6	.724	4.261	71.678				
7	.705	4.147	75.825				
8	.632	3.716	79.541				
9	.616	3.622	83.163				
10	.542	3.189	86.352				
11	.463	2.721	89.073				
12	.432	2.544	91.617				
13	.392	2.303	93.920				
14	.337	1.983	95.903				
15	.285	1.678	97.582				
16	.211	1.238	98.820				
17	.201	1.180	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.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Component Number

Pattern Matrix[a]

	Component				
	1	2	3	4	5
I come to university because I am fascinated by my subject and I want to spend time studying it.	.857	-.026	-.074	.026	.080
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	.838	-.008	.012	.172	.037
I come to university because I genuinely love to learn.	.815	.036	-.001	-.058	-.099
I come to university because I really enjoy the challenge.	.586	-.053	-.039	.011	-.224
Honestly, I do not know - I feel like I am wasting my time at university.	.039	.864	.055	-.116	.120
I do not feel interested in university and I wonder whether I should continue.	-.003	.849	-.042	-.113	.179
I come to university because I do not know what else to do.	-.222	.633	.061	.244	-.088
I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do.	.064	.626	-.033	.051	-.187
I come to university so that I can get a well-paid job at the end.	-.043	.112	-.822	-.070	-.091
I come to university because it will help me to find a job that I enjoy.	.029	-.089	-.813	.031	-.022
I come to university because it will prepare me for a career that I have in mind.	.195	-.097	-.808	-.018	.215
I come to university because it will make me more employable.	-.185	.096	-.553	.161	-.328

I come to university because I really enjoy meeting new people and socialising.	.048	.037	.035	.926	.093
I come to university because it gives me opportunities to do things that interest me.	.322	-.178	-.234	.491	-.040
I come to university because success here will make me feel much better about myself.	-.052	.004	-.105	-.102	-.860
I come to university because I want to show that I am capable of completing a degree.	.275	.162	-.014	-.076	-.644
I come to university because I really want to grow as a person.	.135	-.231	-.040	.184	-.640

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.[a]

a. Rotation converged in 8 iterations.

Component Correlation Matrix

Component	1	2	3	4	5
1	1.000	-.311	-.309	.183	-.225
2	-.311	1.000	.117	-.124	-.107
3	-.309	.117	1.000	-.196	.357
4	.183	-.124	-.196	1.000	-.167
5	-.225	-.107	.357	-.167	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Appendix 8: Internal Reliability Tests for Motivation Measures

Intrinsic Motivation (IM1, IM2, IM3, IM4, IM5)

Case Processing Summary

		N	%
Cases	Valid	329	97.9
	Excluded[a]	7	2.1
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.836	.840	5

Inter-Item Correlation Matrix

	I come to university because I am fascinated by my subject and I want to spend time studying it.	I come to university because I really enjoy thinking about my subject and hearing people talk about it.	I come to university because I genuinely love to learn.	I come to university because I really enjoy the challenge.	I come to university because it gives me opportunities to do things that interest me.
I come to university because I am fascinated by my subject and I want to spend time studying it.	1.000	.774	.576	.448	.469
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	.774	1.000	.600	.447	.490
I come to university because I genuinely love to learn.	.576	.600	1.000	.518	.406
I come to university because I really enjoy the challenge.	.448	.447	.518	1.000	.400
I come to university because it gives me opportunities to do things that interest me.	.469	.490	.406	.400	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I come to university because I am fascinated by my subject and I want to spend time studying it.	15.9939	19.701	.723	.628	.782
I come to university because I really enjoy thinking about my subject and hearing people talk about it.	16.2158	18.834	.736	.648	.776
I come to university because I genuinely love to learn.	16.9179	18.088	.665	.456	.796
I come to university because I really enjoy the challenge.	17.1550	19.284	.560	.328	.828
I come to university because it gives me opportunities to do things that interest me.	15.9301	21.748	.537	.296	.829

Extrinsic Motivation (EM1, EM2, EM5, EM7)

Case Processing Summary

		N	%
Cases	Valid	332	98.8
	Excluded[a]	4	1.2
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.779	.782	4

Inter-Item Correlation Matrix

	I come to university because it will help me to find a job that I enjoy.	I come to university because it will prepare me for a career that I have in mind.	I come to university so that I can get a well-paid job at the end.	I come to university because it will make me more employable.
I come to university because it will help me to find a job that I enjoy.	1.000	.596	.539	.456
I come to university because it will prepare me for a career that I have in mind.	.596	1.000	.501	.282
I come to university so that I can get a well-paid job at the end.	.539	.501	1.000	.460
I come to university because it will make me more employable.	.456	.282	.460	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I come to university because it will help me to find a job that I enjoy.	12.9759	11.607	.680	.476	.681
I come to university because it will prepare me for a career that I have in mind.	13.1687	11.252	.565	.404	.736
I come to university so that I can get a well-paid job at the end.	13.3855	10.655	.630	.397	.700
I come to university because it will make me more employable.	13.1777	12.654	.475	.276	.777

Amotivation (AMo1, AMo2, AMo3)

Case Processing Summary

		N	%
Cases	Valid	334	99.4
	Excluded[a]	2	.6
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.763	.794	3

Inter-Item Correlation Matrix

	Honestly, I do not know - I feel like I am wasting my time at university.	I do not feel interested in university and I wonder whether I should continue.	I come to university because I do not know what else to do.
Honestly, I do not know - I feel like I am wasting my time at university.	1.000	.775	.471
I do not feel interested in university and I wonder whether I should continue.	.775	1.000	.442
I come to university because I do not know what else to do.	.471	.442	1.000

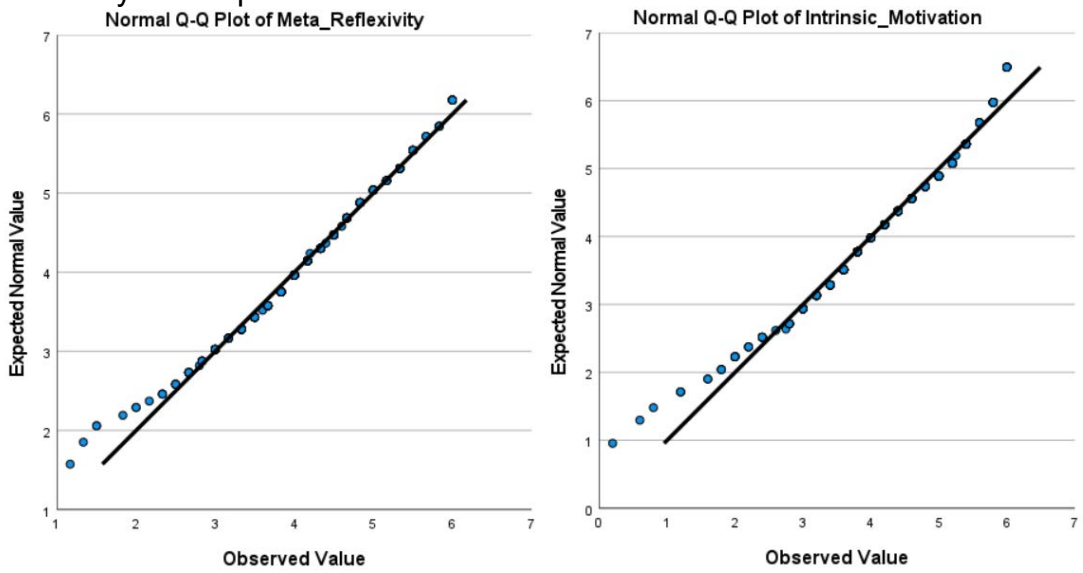
Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Honestly, I do not know - I feel like I am wasting my time at university.	3.0569	8.612	.697	.622	.586
I do not feel interested in university and I wonder whether I should continue.	3.2754	9.059	.675	.609	.618
I come to university because I do not know what else to do.	1.9251	7.313	.485	.237	.873

Appendix 9: Bivariate Analysis

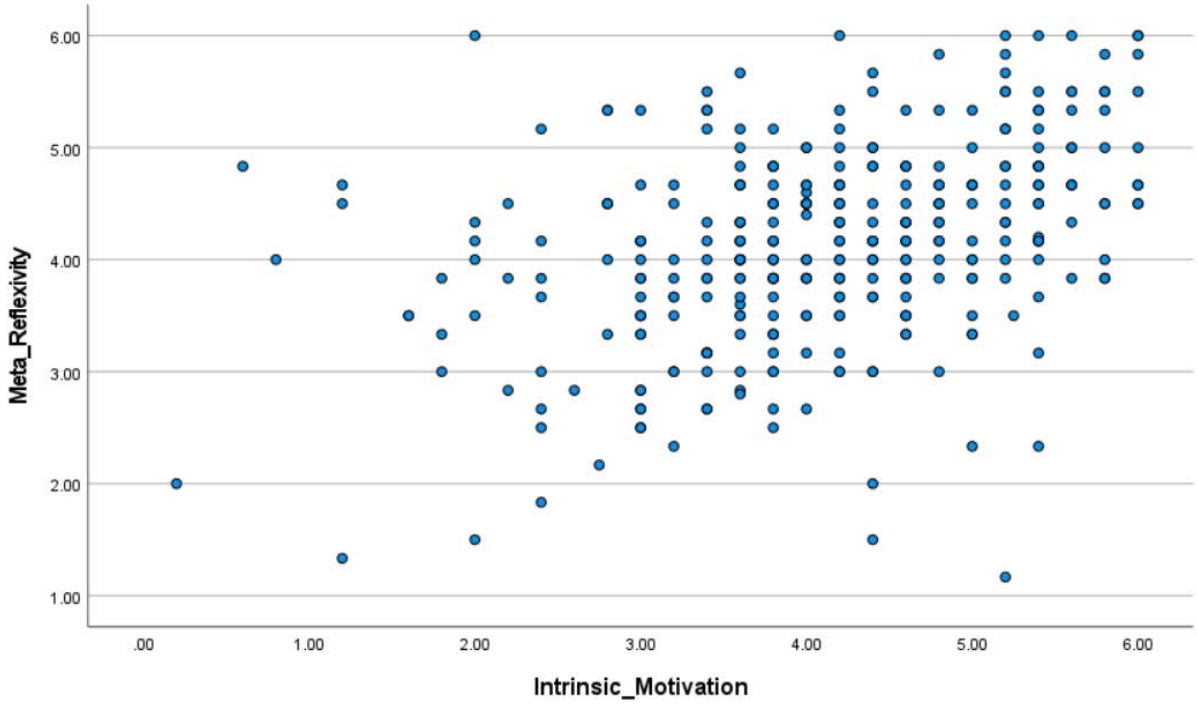
Bivariate Analysis for Meta Reflexivity and Intrinsic Motivation

Normality Assumption



The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.

Homoscedasticity and Linearity Assumption



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

Spearman's rho Test

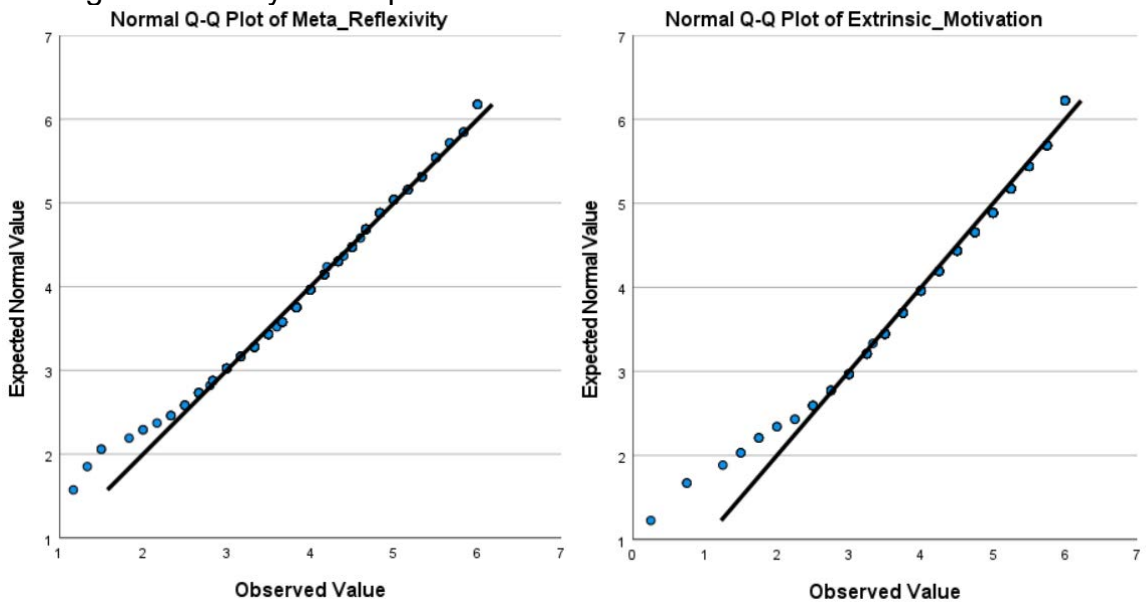
Correlations

			Meta_Reflexivity	Intrinsic_Motivation
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	.405**
		Sig. (2-tailed)	.	<.001
		N	334	333
	Intrinsic_Motivation	Correlation Coefficient	.405**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

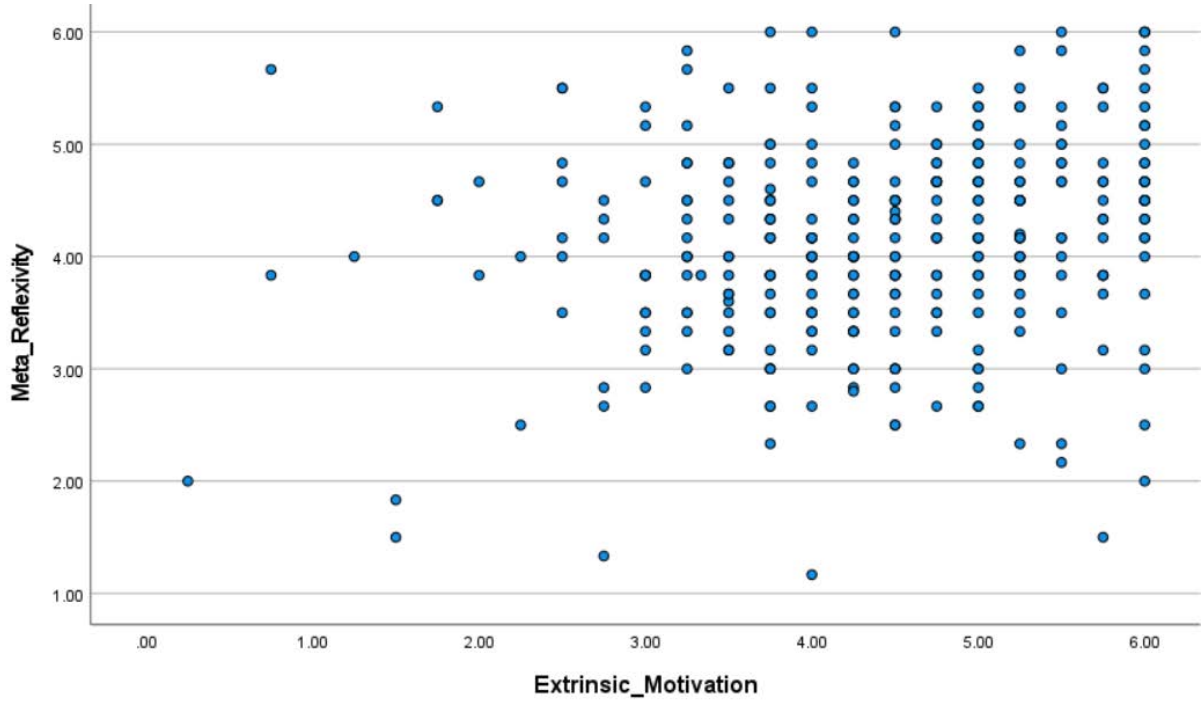
**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Meta Reflexivity and Extrinsic Motivation

Testing of Normality Assumption



The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

Spearman's rho Test

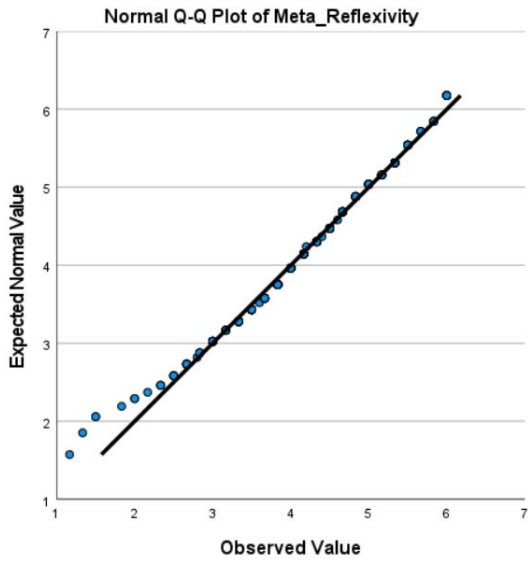
Correlations

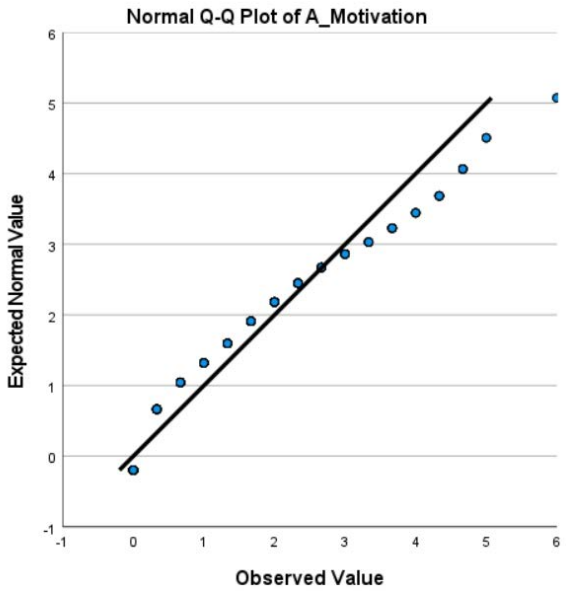
			Meta_Reflexivity	Extrinsic_Motivation
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	.203**
		Sig. (2-tailed)	.	<.001
		N	334	333
	Extrinsic_Motivation	Correlation Coefficient	.203**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Meta Reflexivity and Amotivation

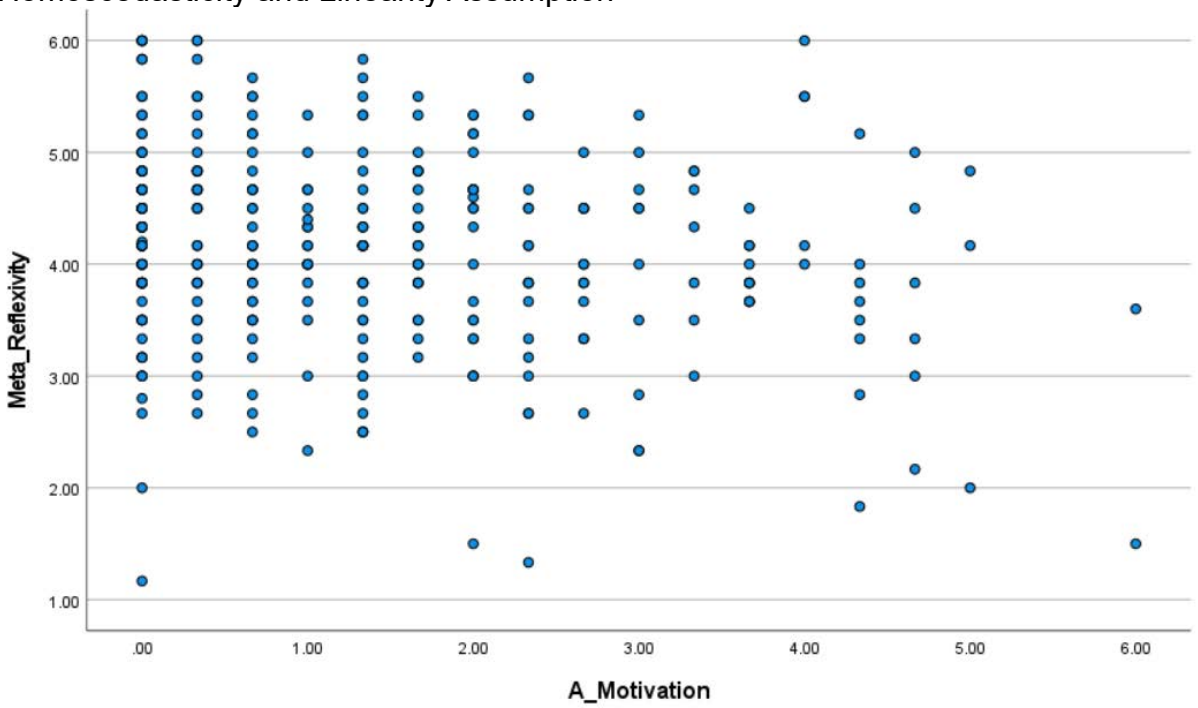
Testing of Normality Assumption





The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.

Homoscedasticity and Linearity Assumption



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

Spearman's rho Test

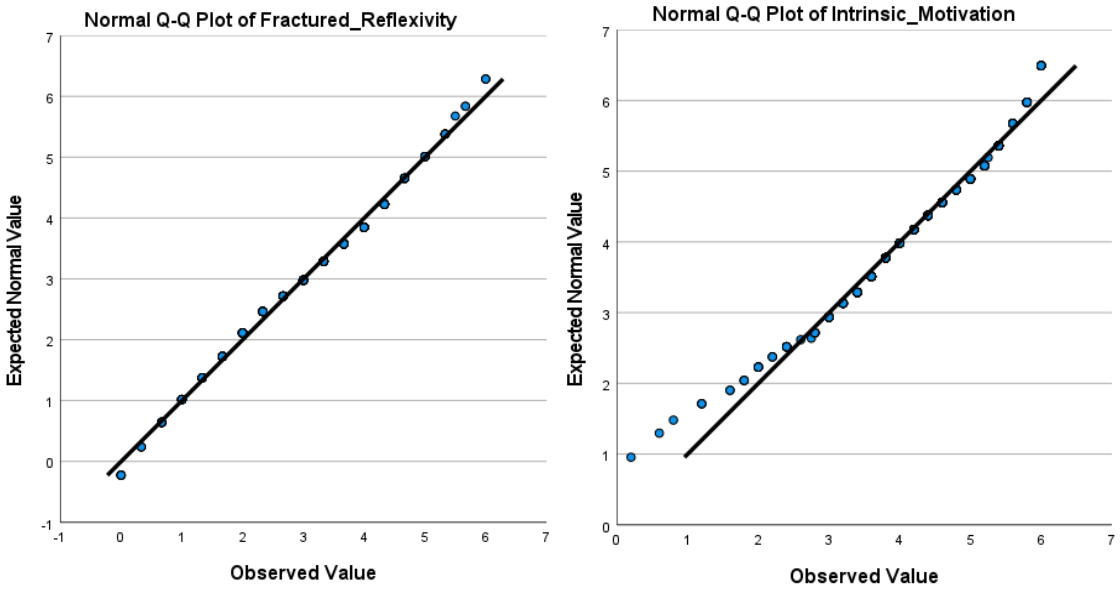
Correlations

			Meta_Reflexivity	A_Motivation
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	-.168**
		Sig. (2-tailed)	.	.002
		N	334	333
	A_Motivation	Correlation Coefficient	-.168**	1.000
		Sig. (2-tailed)	.002	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

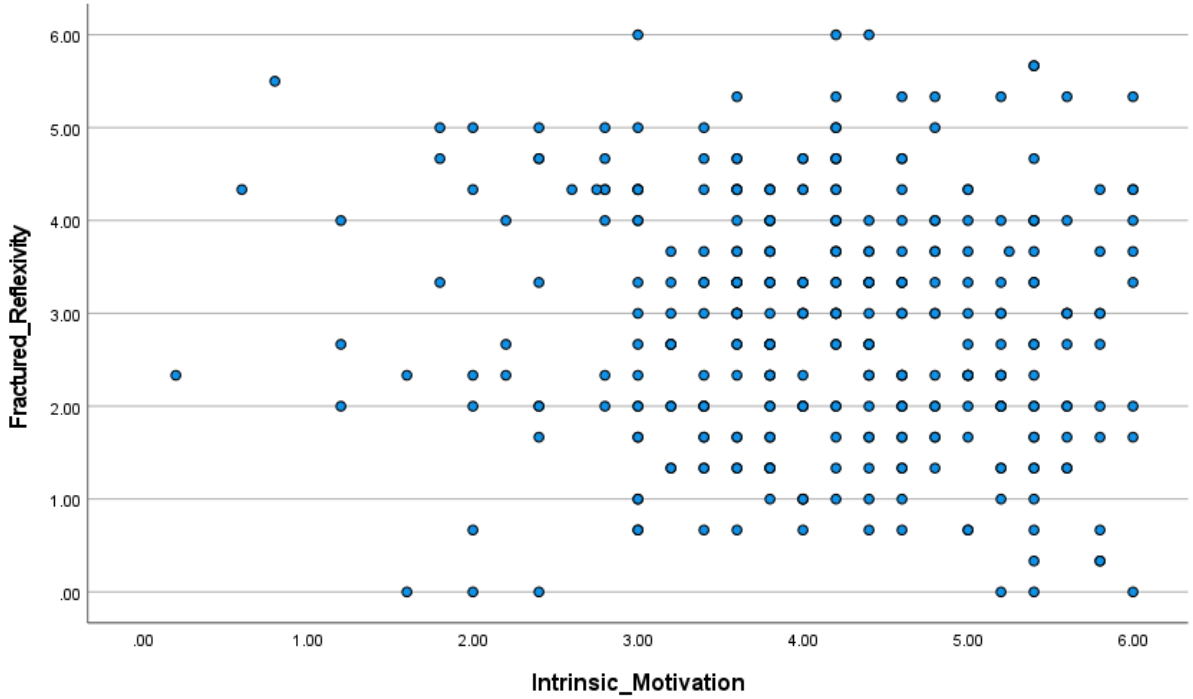
Bivariate Analysis for Fractured Reflexivity and Intrinsic Motivation

Testing of Normality Assumption



The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.

Homoscedasticity and Linearity Assumption



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

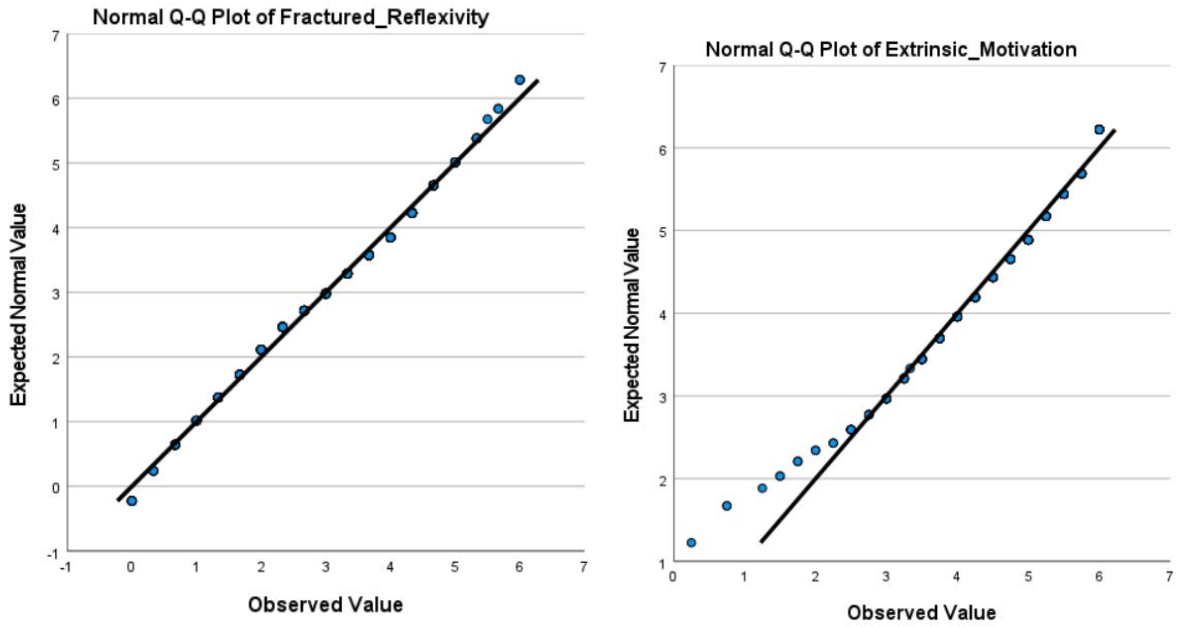
Spearman's rho Test

Correlations

			Fractured_Reflexivity	Intrinsic_Motivation
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	-.100
		Sig. (2-tailed)	.	.067
		N	334	333
	Intrinsic_Motivation	Correlation Coefficient	-.100	1.000
		Sig. (2-tailed)	.067	.
		N	333	334

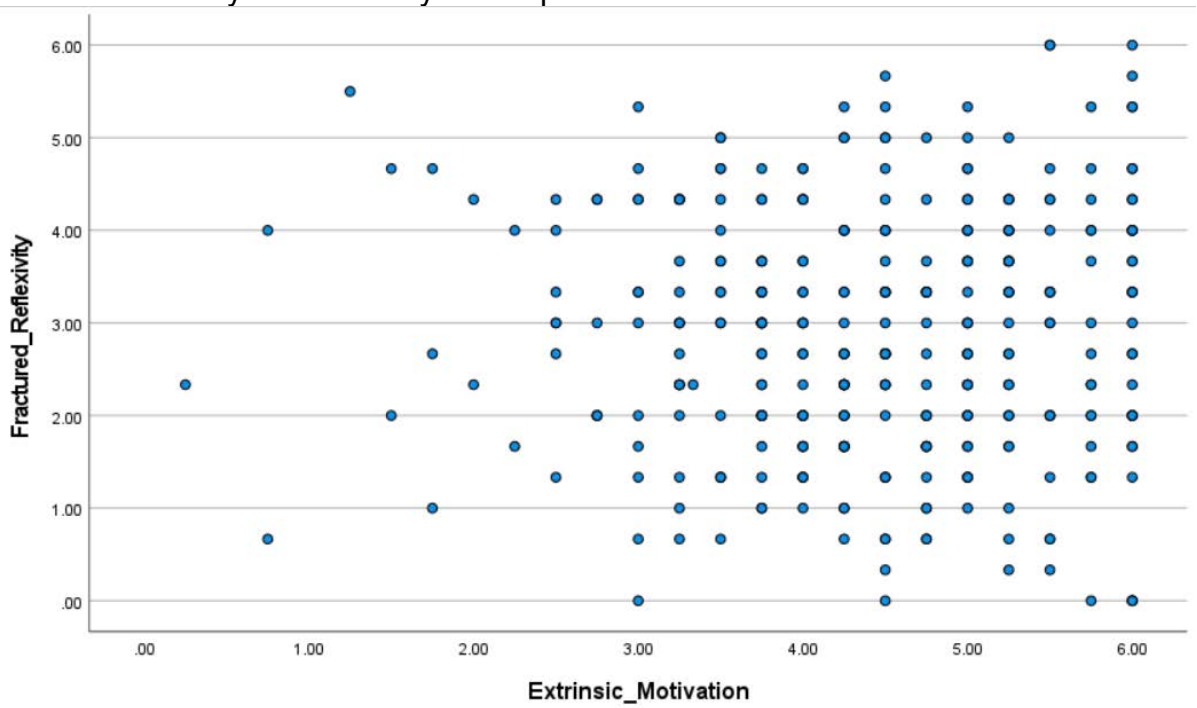
Bivariate Analysis for Fractured Reflexivity and Extrinsic Motivation

Testing of Normality Assumption



The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.

Homoscedasticity and Linearity Assumption



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

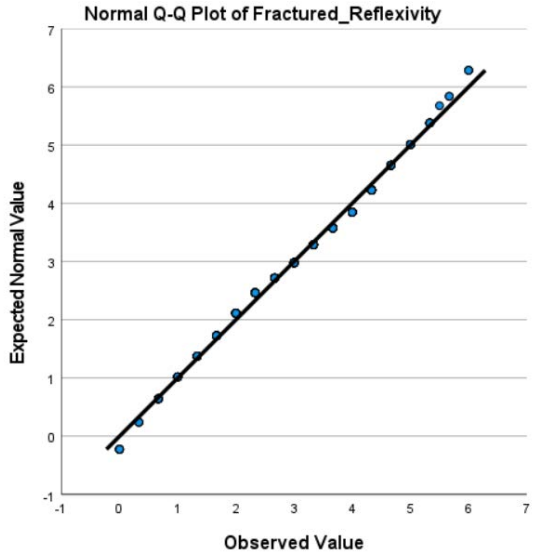
Spearman's rho Test

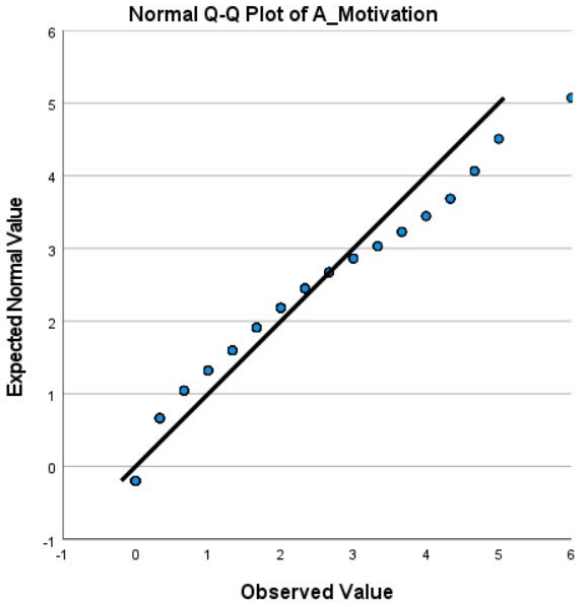
Correlations

			Fractured_Reflexivity	Extrinsic_Motivation
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	.023
		Sig. (2-tailed)	.	.669
		N	334	333
	Extrinsic_Motivation	Correlation Coefficient	.023	1.000
		Sig. (2-tailed)	.669	.
		N	333	334

Bivariate Analysis for Fractured Reflexivity and Amotivation

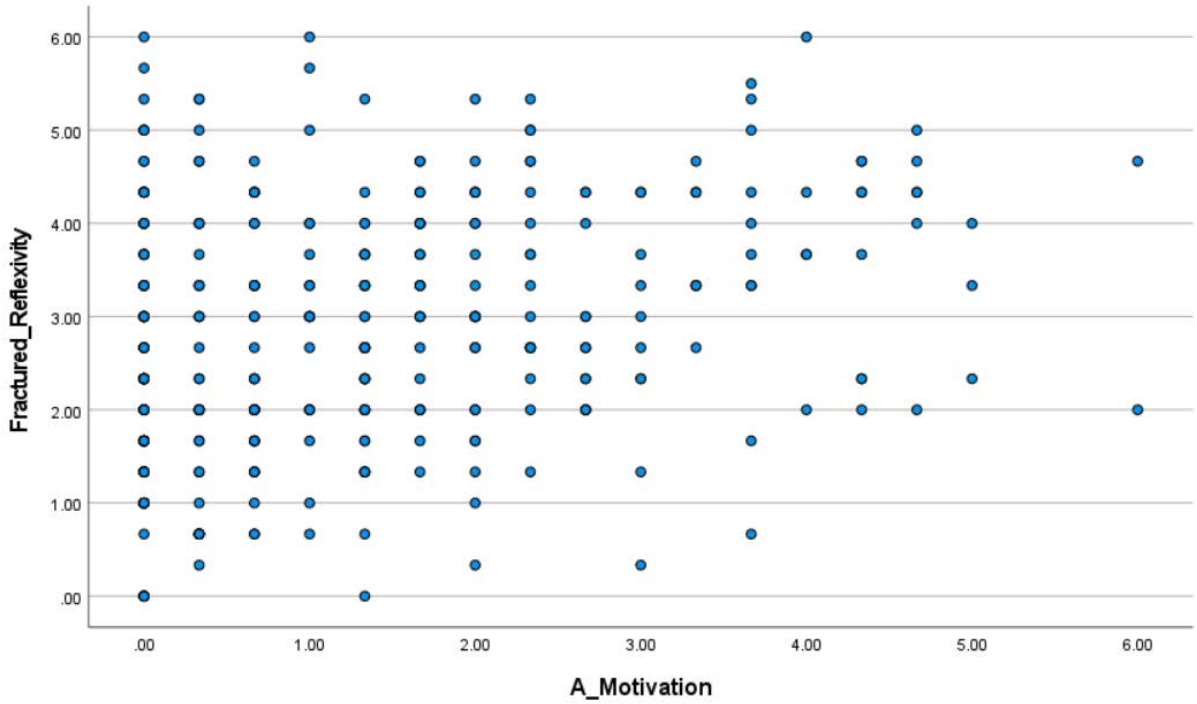
Testing of Normality Assumption





The Q-Q plots showed that the data was approximately normal, because the dots fell close to the line.

Homoscedasticity and Linearity Assumption



The dots in the scatterplot did not form a tube-like shape and were not linear. Therefore, the data did not meet the assumptions for parametric testing and a non-parametric test was used.

Spearman's rho Test

Correlations

			Fractured_Reflexivity	A_Motivation
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	.267**
		Sig. (2-tailed)	.	<.001
		N	334	333
	A_Motivation	Correlation Coefficient	.267**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix 10: Further Bivariate Analysis

Bivariate Analysis for Intrinsic Motivation and Extrinsic Motivation

Correlations

			Intrinsic_Motivation	Extrinsic_Motivation
Spearman's rho	Intrinsic_Motivation	Correlation Coefficient	1.000	.401**
		Sig. (2-tailed)	.	<.001
		N	334	334
	Extrinsic_Motivation	Correlation Coefficient	.401**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Intrinsic Motivation and Amotivation

Correlations

			Intrinsic_Motivation	A_Motivation
Spearman's rho	Intrinsic_Motivation	Correlation Coefficient	1.000	-.398**
		Sig. (2-tailed)	.	<.001
		N	334	334
	A_Motivation	Correlation Coefficient	-.398**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Extrinsic Motivation and Amotivation

Correlations

			A_Motivation	Extrinsic_Motivation
Spearman's rho	A_Motivation	Correlation Coefficient	1.000	-.131*
		Sig. (2-tailed)	.	.016
		N	334	334
	Extrinsic_Motivation	Correlation Coefficient	-.131*	1.000
		Sig. (2-tailed)	.016	.
		N	334	334

*. Correlation is significant at the 0.05 level (2-tailed).

Bivariate Analysis for Autonomous Reflexivity and Intrinsic Motivation

Correlations

			Intrinsic_Motivation	AR1_AR2_AR4
Spearman's rho	Intrinsic_Motivation	Correlation Coefficient	1.000	.221**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR1_AR2_AR4	Correlation Coefficient	.221**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Intrinsic_Motivation	AR2_AR4_AR6
Spearman's rho	Intrinsic_Motivation	Correlation Coefficient	1.000	.274**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR2_AR4_AR6	Correlation Coefficient	.274**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Intrinsic_Motivation	AR1_AR2_AR4_AR6
Spearman's rho	Intrinsic_Motivation	Correlation Coefficient	1.000	.244**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR1_AR2_AR4_AR6	Correlation Coefficient	.244**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Autonomous Reflexivity and Extrinsic Motivation

Correlations

			Extrinsic_Motivation	AR1_AR2_AR4
Spearman's rho	Extrinsic_Motivation	Correlation Coefficient	1.000	.175**
		Sig. (2-tailed)	.	.001
		N	334	333
	AR1_AR2_AR4	Correlation Coefficient	.175**	1.000
		Sig. (2-tailed)	.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Extrinsic_Motivation	AR2_AR4_AR6
Spearman's rho	Extrinsic_Motivation	Correlation Coefficient	1.000	.272**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR2_AR4_AR6	Correlation Coefficient	.272**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Extrinsic_Motivation	AR1_AR2_AR4_AR6
Spearman's rho	Extrinsic_Motivation	Correlation Coefficient	1.000	.231**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR1_AR2_AR4_AR6	Correlation Coefficient	.231**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Autonomous Reflexivity and Amotivation

Correlations

			A_Motivation	AR1_AR2_AR4
Spearman's rho	A_Motivation	Correlation Coefficient	1.000	-.221**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR1_AR2_AR4	Correlation Coefficient	-.221**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			A_Motivation	AR2_AR4_AR6
Spearman's rho	A_Motivation	Correlation Coefficient	1.000	-.183**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR2_AR4_AR6	Correlation Coefficient	-.183**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			A_Motivation	AR1_AR2_AR4_AR6
Spearman's rho	A_Motivation	Correlation Coefficient	1.000	-.195**
		Sig. (2-tailed)	.	<.001
		N	334	333
	AR1_AR2_AR4_AR6	Correlation Coefficient	-.195**	1.000
		Sig. (2-tailed)	<.001	.
		N	333	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Autonomous Reflexivity and Meta Reflexivity

Correlations

			Meta_Reflexivity	AR1_AR2_AR4
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	.218**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR1_AR2_AR4	Correlation Coefficient	.218**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Meta_Reflexivity	AR2_AR4_AR6
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	.291**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR2_AR4_AR6	Correlation Coefficient	.291**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Meta_Reflexivity	AR1_AR2_AR4_AR6
Spearman's rho	Meta_Reflexivity	Correlation Coefficient	1.000	.247**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR1_AR2_AR4_AR6	Correlation Coefficient	.247**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Bivariate Analysis for Autonomous Reflexivity and Fractured Reflexivity

Correlations

			Fractured_Reflexivity	AR1_AR2_AR4
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	-.372**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR1_AR2_AR4	Correlation Coefficient	-.372**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Fractured_Reflexivity	AR2_AR4_AR6
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	-.253**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR2_AR4_AR6	Correlation Coefficient	-.253**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

			Fractured_Reflexivity	AR1_AR2_AR4_AR6
Spearman's rho	Fractured_Reflexivity	Correlation Coefficient	1.000	-.314**
		Sig. (2-tailed)	.	<.001
		N	334	334
	AR1_AR2_AR4_AR6	Correlation Coefficient	-.314**	1.000
		Sig. (2-tailed)	<.001	.
		N	334	334

**. Correlation is significant at the 0.01 level (2-tailed).

Internal Reliability Tests for Autonomous Reflexivity (AR1, AR2, and AR4)

Case Processing Summary

		N	%
Cases	Valid	331	98.5
	Excluded[a]	5	1.5
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.552	.550	3

Inter-Item Correlation Matrix

	'Being decisive comes easily to me.'	I know myself very well and am confident in my ability to be self-reliant.	I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.
'Being decisive comes easily to me.'	1.000	.400	.143
I know myself very well and am confident in my ability to be self-reliant.	.400	1.000	.326
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.143	.326	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
'Being decisive comes easily to me.'	8.4381	4.320	.349	.160	.484
I know myself very well and am confident in my ability to be self-reliant.	7.1964	4.055	.484	.234	.242
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	6.4985	5.948	.277	.107	.571

Internal Reliability Tests for Autonomous Reflexivity (AR2, AR4, and AR6)

Case Processing Summary

		N	%
Cases	Valid	332	98.8
	Excluded[a]	4	1.2
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.513	.528	3

Inter-Item Correlation Matrix

	I know myself very well and am confident in my ability to be self-reliant.	I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	Building an independent life for myself is more important to me than staying where my family and close friends are.
I know myself very well and am confident in my ability to be self-reliant.	1.000	.326	.213
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.326	1.000	.275
Building an independent life for myself is more important to me than staying where my family and close friends are.	.213	.275	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
I know myself very well and am confident in my ability to be self-reliant.	8.4277	4.638	.325	.123	.416
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	7.7289	5.280	.384	.151	.350
Building an independent life for myself is more important to me than staying where my family and close friends are.	8.4398	4.308	.295	.093	.484

Internal Reliability Tests for Autonomous Reflexivity (AR1, AR2, AR4, and AR6)

Case Processing Summary

		N	%
Cases	Valid	331	98.5
	Excluded[a]	5	1.5
	Total	336	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.533	.547	4

Inter-Item Correlation Matrix

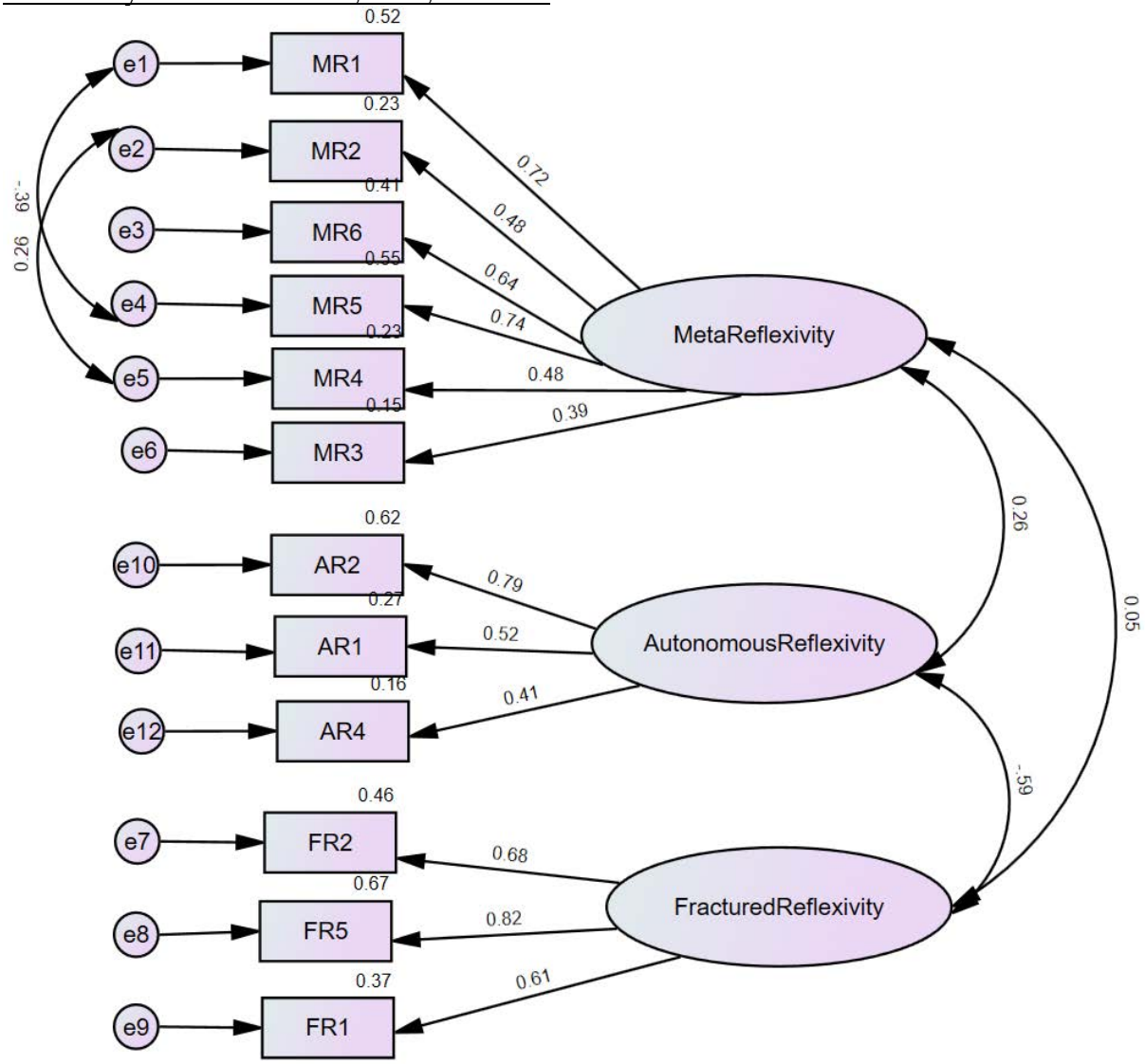
	'Being decisive comes easily to me.'	I know myself very well and am confident in my ability to be self-reliant.	I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	Building an independent life for myself is more important to me than staying where my family and close friends are.
'Being decisive comes easily to me.'	1.000	.400	.143	.034
I know myself very well and am confident in my ability to be self-reliant.	.400	1.000	.326	.213
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	.143	.326	1.000	.276
Building an independent life for myself is more important to me than staying where my family and close friends are.	.034	.213	.276	1.000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
'Being decisive comes easily to me.'	12.2991	8.604	.265	.164	.513
I know myself very well and am confident in my ability to be self-reliant.	11.0574	7.569	.474	.251	.321
I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	10.3595	9.419	.359	.152	.443
Building an independent life for myself is more important to me than staying where my family and close friends are.	11.0665	8.777	.224	.097	.552

Appendix 11: Further Confirmatory Factor Analysis

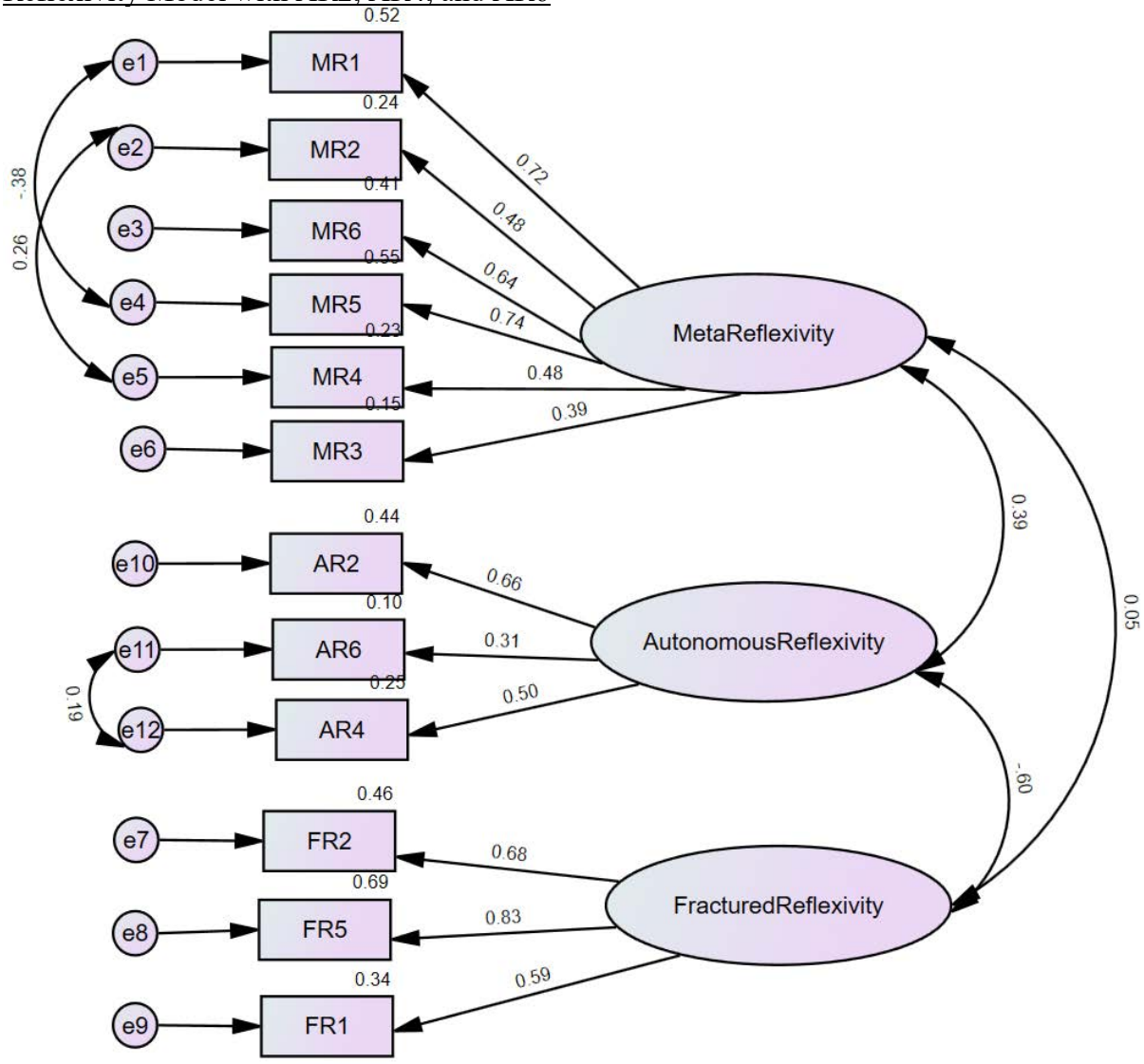
Reflexivity Model with AR1, AR2, and AR4



Absolute Indexes			Relative Indexes			Parsimonious Indexes			Model Comparison Indexes		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.902**	AGFI	≥ .90	**.896**	AIC	Lower	**185.044**
X^2/df	≤ 2.00**	**2.58**	NFI	≥ .95*	**.853**	PGFI	> .50	**.587**	BCC	Lower	**187.653**
GFI	≥ .95*	**.935**	IFI	≥ .95*	**.904**	PNFI	> .50	**.633**	BIC	Lower	**292.742**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.868**				ECVI	Lower	**.613**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.073**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

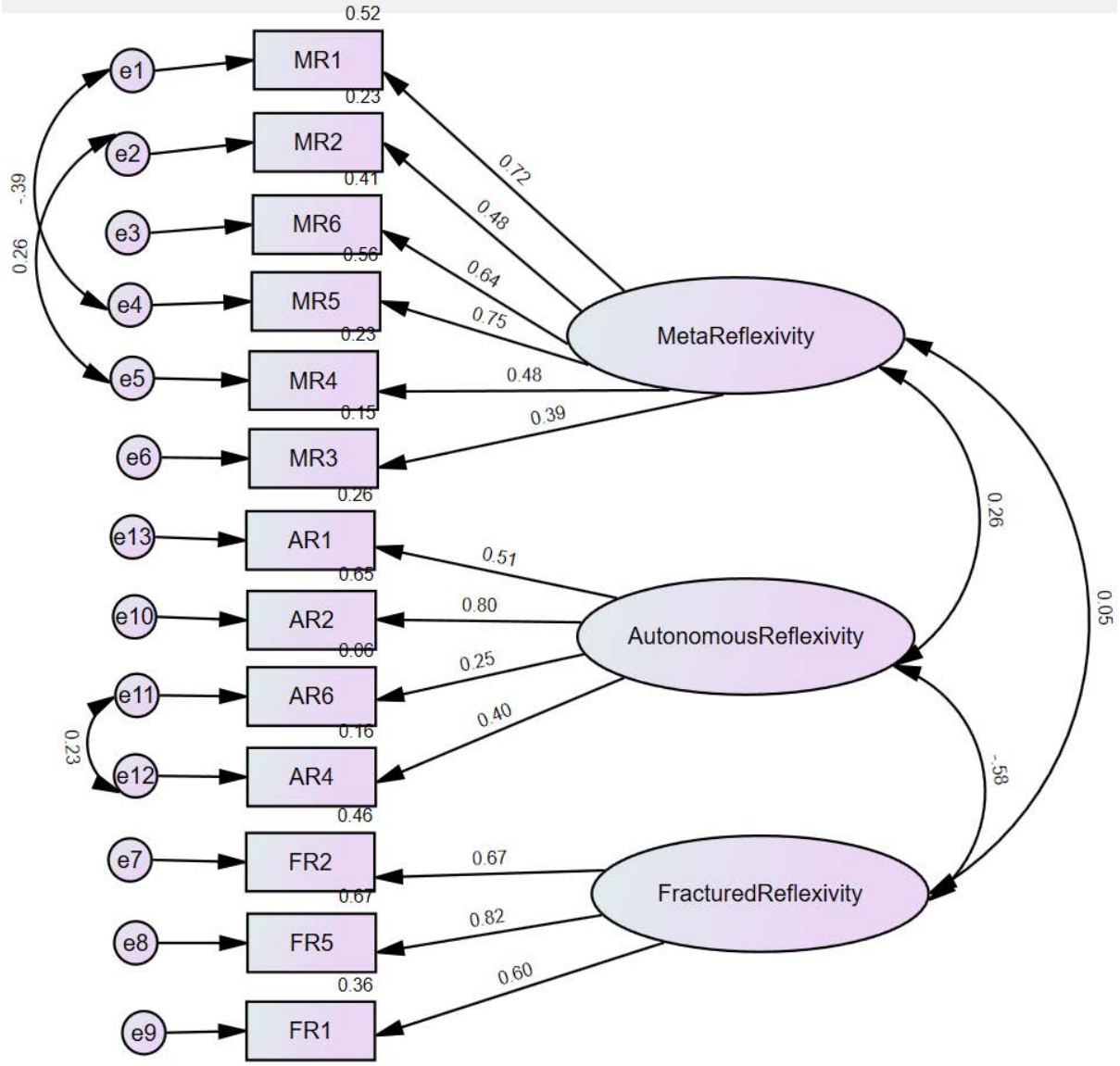
Reflexivity Model with AR2, AR4, and AR6



Absolute Indexes			Relative Indexes			Parsimonious Indexes			Model Comparison Indexes		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	$p > .05$	**.000**	CFI	≥ .95*	**.911**	AGFI	≥ .90	**.906**	AIC	Lower	**175.528**
X^2/df	≤ 2.00**	**2.39**	NFI	≥ .95*	**.860**	PGFI	> .50	**.580**	BCC	Lower	**178.227**
GFI	≥ .95*	**.942**	IFI	≥ .95*	**.913**	PNFI	> .50	**.625**	BIC	Lower	**286.940**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.878**				ECVI	Lower	**.581**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.068**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Reflexivity Model with AR1, AR2, AR4, and AR6



Absolute Indexes			Relative Indexes			Parsimonious Indexes			Model Comparison Indexes		
Test	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**	**Test**	**Target Value**	**Actual Value**
X^2	*p* > .05	**.000**	CFI	≥ .95*	**.898**	AGFI	≥ .90	**.896**	AIC	Lower	**208.351**
X^2/df	≤ 2.00**	**2.44**	NFI	≥ .95*	**.842**	PGFI	> .50	**.604**	BCC	Lower	**211.462**
GFI	≥ .95*	**.932**	IFI	≥ .95*	**.900**	PNFI	> .50	**.637**	BIC	Lower	**327.190**
RMSR	≤ .05	**NONE**	TLI	≥ .95*	**.865**				ECVI	Lower	**.690**
SRMSR	≤ .10	**NONE**									
RMSEA	≤ .06***	**.069**									

***** Values between .90 and .95 indicate an acceptable level of fit
** Values up to about 5.00 may be acceptable (Bollen, 1989)
*** Values between .07 and .08 indicate a moderate fit; values between .08 and .10 indicate a marginal fit; and values in excess of .10 indicate a poor fit (Brown & Cudeck, 1993; Muthen & Muthen, 2010)
Table taken from (Meyers et al. 2016: 517).

Appendix 12: Copy of the Survey

Age:

Gender:

Course Title:

Tick all that apply

1. Are you a commuter or did you move away to come to university?	I commute from where I was already living	
	I moved away	
2. Which year of study are you in?	First	
	Second	
	Third	
	Fourth	
	Postgraduate	
3. Has anyone in your immediate family been to university (e.g. parents or siblings)?	No	
	Yes (1 Parent has been)	
	Yes (Both parents have been)	
	Yes (1 or more siblings has been)	
	Not applicable	
4. Before coming to university, did you ever have a job? (tick all that apply)	Yes (I had previously been in full time employment)	
	Yes (I had previously been in part-time employment)	
	Yes (I had previously done voluntary work)	
	No (I never had a job of any sorts before coming to university)	
5. Did you have any time away from education before coming to university?	No	
	Yes (1 Year)	
	Yes (2 Years)	
	Yes (3 Years)	
	Yes (more than 3 Years)	
6. Do you know what you want to do when you finish university?	Yes	
	No, but I have some ideas	
	No, I have no idea	

Some of us have conversations with ourselves, silently in our own heads. We might just call this ‘thinking things over’. Is this the case for you?

Yes NO

In general, how much do you agree with the following statements?

	Strongly Disagree						Strongly Agree
7. Before making decisions, I like to check what other people think I should do.	1	2	3	4	5	6	7
8. Being decisive comes easily to me.	1	2	3	4	5	6	7
9. I reflect on my experiences so that I can try and help other people.	1	2	3	4	5	6	7
10. I block difficulties out of my mind, rather than trying to think them through.	1	2	3	4	5	6	7
11. I find that sharing things with other people is more effective than thinking them through alone.	1	2	3	4	5	6	7
12. I know myself very well and am confident in my ability to be self-reliant.	1	2	3	4	5	6	7
13. I try to live up to ethical ideals, even if it costs me to do so.	1	2	3	4	5	6	7
14. When I try to think things through, I usually end up feeling stressed and overwhelmed.	1	2	3	4	5	6	7
15. I put family and close friends before everything else.	1	2	3	4	5	6	7
16. I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.	1	2	3	4	5	6	7
17. I spend a lot of time thinking about other people’s emotions and situations from multiple perspectives.	1	2	3	4	5	6	7

18. Thinking rarely leads me to a purposeful plan of action and often makes things worse.	1	2	3	4	5	6	7
	Strongly Disagree						Strongly Agree
19. I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out.	1	2	3	4	5	6	7
20. My preference would be to stay in the place where I grew up, with my family and friends around me.	1	2	3	4	5	6	7
21. I tend to put work before everything else.	1	2	3	4	5	6	7
22. When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.	1	2	3	4	5	6	7
23. I currently have no idea of what I want to do or who I want to be.	1	2	3	4	5	6	7
24. I don't feel like I need to change in order to get what I want out of life.	1	2	3	4	5	6	7
25. I have a good idea of where I want to be in the future and how I can get there	1	2	3	4	5	6	7
26. I think a lot about how to improve myself and society	1	2	3	4	5	6	7
27. I usually trust the judgement of others more than my own	1	2	3	4	5	6	7
28. When it comes to employment, the most important thing is that I have opportunities to progress up the ladder.	1	2	3	4	5	6	7
29. When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others.	1	2	3	4	5	6	7

30. I have no idea what to prioritise at the minute	1	2	3	4	5	6	7
31. I am happy with the way things are in my life	1	2	3	4	5	6	7
32. Building an independent life for myself is more important to me than staying where my family and close friends are.	1	2	3	4	5	6	7
33. My ideas of how society ought to be are always frustratingly different from how things actually are	1	2	3	4	5	6	7

Why do you come to University?

	Strongly Disagree						Strongly Agree
34. I come to university so that I can get a well-paid job at the end	1	2	3	4	5	6	7
35. I come to university because I genuinely love to learn	1	2	3	4	5	6	7
36. I come to university because I want to show that I am capable of completing a degree	1	2	3	4	5	6	7
37. I come to university because it will prepare me for a career that I have in mind	1	2	3	4	5	6	7
38. I come to university because I am fascinated by my subject and I want to spend time studying it	1	2	3	4	5	6	7
39. I come to university because I really enjoy thinking about my subject and hearing people talk about it	1	2	3	4	5	6	7
40. I come to university because people (e.g., parents, friends, teachers etc.) have made me feel like university is something I must do	1	2	3	4	5	6	7
41. I come to university because I really enjoy the challenge	1	2	3	4	5	6	7
42. I come to university because it will help me to find a job that I enjoy	1	2	3	4	5	6	7
43. I come to university because success here will make me feel much better about myself	1	2	3	4	5	6	7
44. I come to university because I really want to grow as a person	1	2	3	4	5	6	7

45. Honestly, I do not know - I feel like I am wasting my time at university	1	2	3	4	5	6	7
46. I come to university because it will make me more employable	1	2	3	4	5	6	7
47. I do not feel interested in university and I wonder whether I should continue	1	2	3	4	5	6	7
48. I come to university because I really enjoy meeting new people and socialising	1	2	3	4	5	6	7
49. I come to university because I do not know what else to do	1	2	3	4	5	6	7
50. I come to university because it gives me opportunities to do things that interest me.	1	2	3	4	5	6	7

In your opinion, was this survey… (tick all that apply)

Interesting		Too long	
Boring		Easy to complete	
Relevant		Difficult to complete	
Confusing			

Possible Opportunity: Would you be interested in attending an online or in-person interview to talk about your journey into Higher education and your experiences as a student? This would also be a chance for you to see how your survey responses have been analysed and what the results might say about you. If this is something you might be interested in, please leave an email address below:

Appendix 13: Copy of Survey Measures in Order

Communicative Reflexivity

CR1: Before making decisions, I like to check what other people think I should do.
CR2: I find that sharing things with other people is more effective than thinking them through alone.
CR3: I usually trust the judgement of others more than my own.
CR4: I put family and close friends before everything else.
CR5: My preference would be to stay in the place where I grew up, with my family and friends around me.
CR6: I am happy with the way things are in my life.
CR7: I don't feel like I need to change in order to get what I want out of life.

Autonomous Reflexivity

AR1: Being decisive comes easily to me. (MA, not negatively worded)
AR2: I know myself very well and am confident in my ability to be self-reliant.
AR3: I tend to put work before everything else.
AR4: I take a lot of responsibility for myself and I believe that others should be encouraged to do this too.
AR5: I have a good idea of where I want to be in the future and how I can get there.
AR6: Building an independent life for myself is more important to me than staying where my family and close friends are.
AR7: When it comes to employment, the most important thing is that I have opportunities to progress up the ladder.

Meta Reflexivity

MR1: I reflect on my experiences so that I can try and help other people.
MR2: I spend a lot of time thinking about other people's emotions and situations from multiple perspectives.
MR3: I try to live up to ethical ideals, even if it costs me to do so. (MA, I added ethical)
MR4: When making decisions, I take time to think carefully about multiple options and what the broader implications of them would be for other people.
MR5: I think a lot about how to improve myself and society.
MR6: When it comes to employment, the most important thing is that I have opportunities to make a difference and improve the lives of others
MR7: My ideas of how things ought to be are always frustratingly different from how things actually are.

Fractured Reflexivity

FR1: When I try to think things through, I usually end up feeling stressed and overwhelmed.
FR2: Thinking rarely leads me to a purposeful plan of action and often makes things worse.
FR3: I currently have no idea of what I want to do or who I want to be.
FR4: I have no idea what to prioritise at the minute.
FR5: I feel helpless and powerless to deal with my problems, no matter how hard I try to sort them out. (MA)
FR6: I block difficulties out of my mind, rather than trying to think them through. (MA)

Intrinsic Motivation

IM1: I come to university because I genuinely love to learn
IM2: I come to university because I am fascinated by my subject and I want to spend time studying it
IM3: I come to university because I really enjoy the challenge
IM4: I come to university because it gives me opportunities to do things that interest me
IM5: I come to university because I really enjoy thinking about my subject and hearing people talk about it
IM6: I come to university because I really want to grow as a person

IM7: I come to university because I really enjoy meeting new people and socialising
Extrinsic Motivation
EM1: I come to university because it will prepare me for a career that I have in mind **EM2:** I come to university because it will help me to find a job that I enjoy **EM3:** I come to university because I want to show that I am capable of completing a degree **EM4:** I come to university because success here will make me feel much better about myself **EM5:** I come to university so that I can get a well-paid job at the end **EM6:** I come to university because people (e.g. parents, friends, teachers etc.) have made me feel like university is something I must do **EM7:** I come to university because it will make me more employable
Amotivation
AMo1: I come to university because I do not know what else to do **AMo2:** Honestly, I do not know - I feel like I am wasting my time at university **AMo3:** I do not feel interested in university and I wonder whether I should continue