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The Role of Pedagogical Nudging and Reflection

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INTRODUCTION

…the explicit…goal of (entrepreneurship and enterprise) education is to make changes in society via changes in individual behavior. (Pittaway & Cope 2007:479)

Prior to entering university, students have already developed a set of dispositions and behaviours and accrued certain forms of capital. They will, for example, have preconceived ideas about who is or who can become an entrepreneur, as well as what activities an entrepreneur undertakes. Such notions about entrepreneurs include having a good idea, being risk-takers, needing large amounts of capital and knowledge about markets, and lastly, that the entrepreneur is a lone, heroic figure, who has a particular set of characteristics setting them apart from all others (Gartner, 1988; Ogbor 2000). Hence, it is understandable that these assumptions remain central in our teaching and are ones with which we constantly battle. Students are often encouraged to start a business and judge themselves against this 'ideal person' (Jones, 2014); a perspective, which may be counterproductive if students are not cognitively primed to start a business. Indeed, the small number of student businesses that actually continue after the programme ends raises the question whether they have learnt how to be entrepreneurial. Hence, the challenge of entrepreneurship is a much broader one than just encouraging students to start a business; it is to expedite entrepreneurial behaviour through action irrespective of their context. We, therefore, need new ways of understanding institutional approaches; teaching and learning; and staff and students' positioning as inter-related dimensions of this particular field (Neck and Corbett 2018). So, if we want to achieve what Pittaway and Cope (2007) suggest in the above

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quote, then we need to pay attention to how educators meet the students that they will guide and take into account the existing conceptualizations that students bring with them. Simultaneously, we need to create safe and challenging spaces for the students to learn about themselves as being entrepreneurial - in other words we need to address how to set up education to achieve transformation of individual behaviour.

Changing individual behaviour, as Pittaway and Cope (2007) suggest, is about individuals' identities and understanding how these are shaped through learning. However, there is limited research that focuses on what happens in the classroom and how classroom-based learning environments may influence students' development of an entrepreneurial identity, indeed, Ilonen and Heinonen (2018:392) argue that there has been little research '*addressing the effect and emotion, particularly the related learning outcomes'*, whilst Lackeus (2014:374) suggests that few articles '*empirically account for when, how and why ... learning environments contribute to the development of entrepreneurial competencies'*. With a few exceptions (see e.g. Middleton and Donnellon, 2017), much of the research on classroom activities focuses on identity development in relation to new venture creation, not on *how* to achieve identity development in the classroom setting by emulating entrepreneurial experiences and learning (Middleton, 2013; Donnellon et al 2014; Nielsen and Gartner, 2017). Indeed, Middleton and Donnellon (2017) call for research that documents the effectiveness of such approaches.

In the following, we outline approaches that inform how student dispositions might be transformed during the educational process and propose that, in order to develop enterprising individuals, we need to identify what type of teaching methods assist in developing individuals to become entrepreneurial actors in the world. Subsequently, we investigate the link between classroom learning and experiences that may help foster and support enterprising behaviour.

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Drawing on Thaler and Sunstein's (2008) work on nudging, this paper describes a method we call 'pedagogical nudging', that has the cognitive means to transform student disposition and their perceived 'fit' with becoming entrepreneurial. In the health sector nudging seeks to elicit particular forms of individual behaviour/decisions that are perceived as beneficial to them and society, however, the techniques we have developed are different, in that they stimulate the student to consider other possible behaviours and particularly to reflect on the choices they make. Thus, pedagogical nudging techniques are neither manipulative nor coercive as they do not point to a single and better way of behaviour. The use of pedagogical nudging strategies in entrepreneurship teaching appears to stimulate awareness and understanding of students' entrepreneurial potential. Hence, pedagogical nudging is positioned as a method, which in the hands of a reflective professional stimulates awareness and provides students with the opportunity to explore their own entrepreneurial identity (Neergaard et al 2014; Neergaard et al 2015).

We therefore ask: (i) how do students' perceptions of entrepreneurship change in a transformative learning environment ii) how do students' previous habitual, unreflected responses affect learning in an entrepreneurship education course? And (iii) how can nudging be used to trigger student responses and support potential changes in behaviour to facilitate a better 'fit' with entrepreneurship?

In the following, we illustrate what characterizes the identity formation process experienced by students when exposed to entrepreneurial learning and how students respond to and reflect on the activities that constitute the change process. Consequently, the contribution of this paper is threefold: (i) to extend existing knowledge on transformative learning into the field of entrepreneurship; (ii) to build a model for understanding the link between emotional and reflective practices and their role in transforming student habitus; iii) to show that pedagogical nudging can change the student's self-perception in relation to entrepreneurship. In doing so we contribute to, and extend, existing

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knowledge about the effect of particular kinds of pedagogies in entrepreneurship teaching, and how these can facilitate enterprising behaviour.

This is achieved through a synthesis of insights from transformative learning, nudging and Bourdieu's theory of practice. The paper therefore continues with an introduction to Mezirow's theory of transformative learning linking it to EE. It continues by presenting the rationale for nudging within EE. This is followed by an account of Bourdieu's notions of habitus, capital and field (1977, 1984, 1990) and how they may interact to influence behaviour. The theoretical basis is followed by an explanation of the methodological approach and a description of four interventions from data gathered in six Masters courses with a total of 145 students over a period of 2 years. In our analysis, we identify and discuss three dimensions, which we argue (i) expose and challenge the student identity/habitus (ii) enable the students to experiment with and recognize the entrepreneurial identity/habitus and (iii) finally embrace the entrepreneurial identity/habitus. In conclusion, we suggest that such interventions can be developed and used in any learning environment but require scaffolding in terms of supportive systems and frameworks at both an individual and institutional level.

THEORETICAL BACKGROUND

The following outlines the three theoretical areas that have inspired us in this research (i) Mezirow's theory of transformative learning as the aim of entrepreneurship education; (ii) Thaler and Sunstein's notions about nudging as the means to achieve transformative learning and (iii) Bourdieu's concepts of habitus and capital as the outcomes of entrepreneurship education. The link between transformational learning, pedagogical nudging and habitus is illustrated in Figure 1.

INSERT FIGURE 1 ABOUT HERE

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Transformative Learning

According to Mezirow (2000), the first element in understanding how adult learners process new knowledge is transformative learning (Mezirow, 2000). He states (ibid:58)

'Transformative learning is learning that transforms problematic frames of reference – sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets) – to make them more inclusive, discriminating, open, reflective, and emotionally able to change.'

Mezirow (2000) further refers to the habits of mind, meaning perspectives and mindsets, which in Bourdieuian terms may be regarded as habitus. Mezirow (1997) also stresses that meaning is socially constructed in an individual's interactions within different communities. For transformative learning to take place, the individual combines the cognitive, conative and affective, drawing and analysing not only on past experiences (what happened when), but also projects to possible future action (what happens if). So, reflection is significant to the learning process and to decisions about any resultant actions. This involves levels of both internal and external critical reflection and self-reflection (Mezirow, 2000). Mezirow (ibid; 61) further argues that transformative learning is:

'metacognitive reasoning involving these same understandings but, in addition, emphasizes insight into the source, structure, and history of a frame of reference, as well as judging its relevance, appropriateness, and consequences'.

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Consequently, critical reflection is vital for transformative learning (Freire, 1990). Indeed, it is this competence that is developed throughout adult and further education. However, while meaning making and critical reflection are integral to transformative learning, there is an underlying tension, because emotions also influence possible outcomes (Mälkki, 2010; Mayo et al., 2012). Although Mezirow (2000) was not particularly concerned with emotion, he recognized this tension, asserting that awareness of underlying assumptions and emotional responses can pose a threat to the individual and to possible outcomes in a given situation.

In an EE context, Shepherd (2004; 275) suggests entrepreneurial pedagogy should be directed to elicit emotions that reflect the life-world experiences of entrepreneurs, for example the emotions that result from risk taking and failure. More recent research has subsequently highlighted the role of emotion in EE (Lackeus, 2014; Ilonen and Heinonen, 2018). The latter stress that there has been little research addressing affect or emotion and that the number of studies attempting to address attitudinal changes is limited. However, Jones and Underwood (2017:660) outline the 'emotional ecology of the classroom' and argue that, despite great strides in linking cognitive and behavioural development to emotional processing, '*this has not translated into widespread development and/or adoption of new pedagogies (in entrepreneurship education)*'. Such pedagogies could help students manage and learn from (difficult) emotional events and stimulate student awareness about emotions as a channel for new learning outcomes. Indeed, the emotional element of transformation goes hand in hand with reflection and also links to identity formation, as illustrated in Mezirow (2000:18),

> *'Our values and sense of self are anchored in our frames of reference. They provide us with a sense of stability, coherence, community and identity. Consequently, they are often emotionally charged and strongly defended'*.

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It may be possible that, by prompting critical reflection of events strongly linked to emotions, we can encourage students to acknowledge and question their habitus and their social and symbolic capital to reflect on what was learned. Therefore, in using pedagogical nudging it may be possible to create potential spaces for action that may or may not be chosen in the long run.

Nudging in Entrepreneurship Education

The concept of nudging was first introduced by Thaler and Sunstein (2008). This concept is connected with 'improving decisions about health, wealth and happiness'. A nudge is described as an intervention that '*alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives*' (Thaler & Sunstein, 2008:8). Currently, in marketing and advertising, nudging is increasingly acknowledged as a way to encourage specific changes in behaviour. Simple examples of nudging are the placing of green footsteps that show the way to the garbage bin, placing a 'fly' in the base of the men's urinal or placing fruit instead of sweets at eye level at the supermarket check-out. In marketing the health sector, nudges clearly involve behavioural change interventions – intentional 'pushes' in a particular direction to help individuals make the 'clear right choice' or a better choice for themselves. Research shows that through the use of such persuasive techniques, for example, by presenting choices in different ways, individuals can be steered towards more 'effective' decision-making (Thaler & Sunstein, 2008). Indeed, behavioural economists have found that psychological or neurological biases may even cause some people to make choices that seem contrary to their best interests (Gifford, 2010). Thaler and Sunstein (2008:5) use the concept 'libertarian paternalism' which means that there is guidance in the choice towards beneficial behaviour for the individual and for society.

The power of this technique must be acknowledged even though the context in which people make decisions is manipulative to a certain extent. People will tend to go with the flow, adhere to the

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'status quo'; indeed, how many of us leave the default option on the computer because making another choice requires effort? As humans, we respond on two levels, the Automatic System (AS), and the Reflective System (RS). The AS is uncontrolled and unconscious: what Sweetman (2003) calls the 'non-reflexive habitus', and the RS is controlled and deductive. The non-reflexive aspect of habitus depends upon relatively stable conditions and it is only when we receive a 'cognitive jolt' (Massumi, 2009:36) that we feel as an emotion, that our automatic behaviour is highlighted and we become aware of our actions. Many of us default to the AS rather than bringing the RS into play. Further, within our human bodies, micro-perceptual shocks or jolts can increase general feelings of empowerment, aliveness and changeability (Massumi, 2009:36) that can produce significant changes in behaviour and performance both at a conscious and subconscious level (Baron, 2008). Indeed, a focus on the micro-perceptual level of affect transmission is important because it can explain changes in individuals due to relatively minor forces or events. Indeed, it is argued that emotion helps cognitive retention, supporting student's 'seminal learning experiences' (Taylor, 2010:1110).

Some suggest that classroom-based learning 'may not be sufficient to achieve the highest level of affective learning outcomes' (Ilonen and Heinonen, 2018: 400), and that students may not have the capacity to reflect on entrepreneurial experiences (Hägg and Kurczewska, 2019). However, we argue that affective, micro-perceptual shocks, as triggers for reflection, *can* be emulated in the classroom through pedagogical nudging. We subsequently focus on how such learning experiences can be used to 'nudge' students, supporting them to face their fears and reflect on their habitual responses to risk, challenges and, in turn, their attitudes about themselves, their unreflective behaviours, and ultimately their propensity for entrepreneurship.

So far, scant research into nudging as a teaching pedagogy for enterprising behaviour exists, although some examples of nudging can be found, e.g. by changing terminology in technical drawing, a French study found that if the subject was called "geometry" boys did better, but if it was called

"drawing" girls did equally well or better (Thaler & Sunstein, 2008). Gauthier (2005) argues that it is relevant for teachers to use nudging as students are in a learning situation where there is an expectation about learning/experiencing something new that entails transformation of the individual. For example, in a political science class Griffin (2011:426) explains that she introduced nudging as a way to *'increase the students' tolerance for uncertainty through the recognition that there may not be one "right" way to address the problem at hand.'* Thaler and Sunstein (2008) as well as Bourdieu acknowledge that socialization is of prime importance in forming our behaviour. They posit that three tendencies influence the way individuals behave. First, we are heavily influenced by the actions of others due to socialization. Second, this tunes us into a dominant style (culture). Third, we learn to cope with things the way they are, and no longer consider that they can be different or that we can act in a different way. Indeed, people tend to avoid situations that transgress what they feel they can master (Bandura, 1994) or where they perceive a lack of fit between a field, such as entrepreneurship, and the habitus and the capital they have so far accrued in their life (Bourdieu, 1990). This means that people are more likely to continue as they are and have been, even though they have the abilities to change and their responses and actions may not even in their best interest. It also brings habitus consciously into focus, making us self-aware and forcing us to question our abilities (Sweetman, 2009). This contrasts with our response to a field where we feel comfortable and where our habitus is, *'like a ''fish in water'': it does not feel the weight of the water and it takes the world about itself for granted'* (Bourdieu & Wacquant, 1992:127). However, the 'fish out of water' feeling has the potential to encourage students to acknowledge and consciously change behaviours and understandings and/or to identify new or different forms of capital, which can enhance their position within a particular field. Until now pedagogical nudging has been ignored as a tool in education; as a way to foster/encourage enterprising behaviour. What is paramount here is that the pedagogical nudge is not intended to elicit change in behaviour in a particular way, rather it is intended to stimulate

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reflection about un-reflected responses to situations where there has been none previously. Hence, a pedagogical nudge has the potential to aid reflection about behaviours that may or may not result in change in habitus.

Habitus and Capital in Society

Bourdieu's concept of habitus is based upon the classical Aristotelian idea of *hexis* – translated as a state or *disposition* but, rather than being innate, it describes a 'self which is socially produced' (Lawler, 2004:111) leading to what Bourdieu (2005:211) describes as 'socialized subjectivity'. This socially produced *self* informs our position in society, and the expectations that we have of ourselves (and that others have of us) linked to this social positioning. Habitus is informed by collectively and individually produced notions and can be used to describe ideas related to socially constructed notions of social position. Bourdieu emphasizes the collective basis of habitus, suggesting that individuals who internalize similar life chances share the same habitus (Swartz, 1997). Swartz (1997:103) offers this definition, which informs the conceptual notion of habitus in this paper:

> *'Habitus tends to shape individual action so that existing opportunity structures are perpetuated. Chances of success or failure are internalized and then transformed into* ***individual*** *aspirations or expectations; these are in turn externalized in action that tends to reproduce the objective structure of life chances.'*

However, habitus *can* change over time, for example when experiential learning demonstrates that there is a perceived lack of fit between the habitus that groups and individuals bring to a particular field (McNay, 1999). Learning in these terms involves numerous phases starting with disorienting dilemmas and meaning making (Mezirow, 1990; Kitchenham, 2008). Disorienting dilemmas

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constitute '*a discrepancy between what a person has always assumed to be true and what has just been experienced, heard or read*' and may contribute to a readiness for change (Cranton, 2002:66), and are triggered by cognitive jolts that put you off balance (Massumi, 2009). Disorienting dilemmas caused by cognitive jolts occur when individuals find themselves in a situation where they feel they do not fit in, and that they cannot resolve without changing their worldview. Indeed, when we perceive a lack of fit we have a choice – whether to stay in a particular field and actively and consciously try to change our dispositions and behaviours (to learn the 'rules of the game') in order to develop and acquire the forms of capital needed for legitimacy, or to leave that particular field due to the lack of fit between our habitus and capital and those required for success appears difficult or impossible to overcome (McNay, 1999). There is the potential, then, to open up the 'space of possibilities' (Vandenberghe, 1999) and to imagine a different future.

Entry into a field, such as entrepreneurship, requires a tacit acceptance of the rules of the game, meaning that specific forms of struggle are legitimized whilst others are excluded (Swartz, 1997:125). It is this experience, these struggles and these perceived rules and rewards that this paper seeks to explore. However, simply knowing the rules of the game is not enough to play the game successfully, there is also an interactive element which '*entails not only an intuitive knowledge of game rules, but also the reflexive, rational handling of such rules*' (Mouzelis, 2007). As educators, we suggest that part of our role is to support students to reflexively respond to these rules through the teaching practices and activities we employ.

Bourdieu suggests that the personal and the collective are intertwined and in constant negotiation rather than separate, and in constant opposition (Bourdieu, 1998); offering the possibility of the co-existence of two social worlds – the individual and the collective – and insights into how these social worlds interact can lead to changes in society and individuals (Schwandt, 2005). Bourdieu (1984:101)

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illustrates how habitus, field and capital interact to inform everyday practices thus: [(habitus) (capital)] + field = practice.

Swartz (1997:141) highlights the social reality of this equation, saying that *'action is the product of class dispositions intersecting with the dynamics and structure of particular fields. Practices occur when habitus encounters those competitive arenas called fields, and actions reflect the structure of that encounter.'* Indeed, in emphasizing, discussing, analyzing (and sometimes challenging preconceived ideas about) the suggested dispositions or behaviours of students in the classroom, we are delineating the entrepreneurial habitus (De Clercq & Voronov, 2009) that the course aims to develop in students and the suggested forms of capital needed to succeed. As teachers and students, we identify and explore the suggested 'rules of the game' of the field of entrepreneurship.

The Entrepreneurial Habitus in Education

As entrepreneurship educators, our role is to help students to develop a sense of 'fit' between the dispositions of the players within this game (i.e. entrepreneurs) and the behaviours that they, as students within a particular cultural context, bring to the classroom. In doing so we may highlight areas for development and challenge previous dispositions and attitudes that students have of and to themselves and their 'fit' with the field of entrepreneurship. This might also involve identifying ways in which students can develop or transform the different forms of capital that they bring to the classroom, including the cultural capital linked to 'who they are' in terms of their family or educational background and social capital linked to, for example, the networks that they have access to and can potentially develop through EE (Bourdieu & Wacquant, 1992).

This emphasis on transformation also challenges suggestions that habitus is deterministic and cannot change – something for which Bourdieu has been criticized (Sweetman, 2003; Jenkins, 1992). However, Bourdieu argues that education, and learning the 'rules of the game' of a particular

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field, contributes to the accumulation and transferral of cultural and symbolic capital (Bourdieu, 1984; Bourdieu and Wacquant, 1992). This can lead to transformation of the habitus, '...triggered by the confrontation with novel social challenges' (Koller, 2002:188, cited in von Rosenberg, 2016:1487). Subsequently, our engagement with Bourdieu's work acknowledges that habitus is not fixed, and that the interaction between habitus, capital and field allows for student agency, as also noted by Vaara and Fay (2011) and von Rosenberg (2016). Therefore, as educators we are uniquely positioned to support potential changes in the habitus and capital of our students; a form of transformative learning (Nairn et al., 2012), which involves critical reflection, on the part of both educators and students. Furthermore, it is suggested that Bourdieu's concepts can support transformative learning and offer 'possibilities for the restructuring of student habitus' (Mills, 2008:99). From this perspective, the concept of pedagogical nudging could be seen as a practical approach aimed at encouraging changes or transformations in the habitus.

RESEARCH DESIGN AND METHOD

In the following we explain the approach, background and context in which the data were gathered and the arguments for choosing specific, experimental interventions as material for this article. We then outline our approach to data collection and analysis.

Research Approach, Background and Context

The approach is ethnographic and based on Elliott's (1991) model, which aims to produce useful local or small-scale knowledge to fill the gaps in our existing knowledge about the usefulness of EE, what works and how it works, and potential challenges.

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Numerous methods have been developed to study student conceptions and learning processes. In particular, ethnography has a long tradition in education research but in EE such approaches are sorely lacking (Robinson and Shumar, 2014). Indeed, much EE research relies on large scale quantitative surveys of for example student's self-reports on entrepreneurial self-efficacy or on interviews (see e.g. Kassean et al 2015; Man & Farquharson, 2015). However, according to Erickson (1985) intense and long-term participant observation in a particular educational setting is required to conduct interpretive research in teaching, followed by deliberate and long-term reflection on the observed. The data was therefore collected using an experiential-explorative research approach (Kyrö et al., 2009). The *experiential* part entails that the researchers know about and understand events through direct engagement, thus incorporating the actual experience itself alongside the meanings attributed by the teacher experiencing these. The *explorative* part denotes that, given our knowledge as researchers, we can explore and analyse the meanings that we attribute to these events in more depth and relate them to theory. Indeed, Erickson (1985) comments that such a detailed scrutiny of everyday teaching routines is a valid route to improving educational practices. However, there is currently little evidence of this approach being used in EE.

The data is drawn from a course that was part of two broader MSc programs developed by the professor, who also delivered them. The course focuses on the pre-idea phase of the entrepreneurial process that, according to Krueger and Welpe (2014), is an under-researched subject. The course was run in two different Scandinavian countries, six times over a period of three years. The interventions presented here were developed as a pedagogical tool to help students reflect on what becoming an entrepreneur would mean for them. Hence, the classrooms were set up to move students out of their comfort zone and to 'tune in' to their emotions by removing the distance between people, for example removing the tables and standing or sitting in a circle, so they can see each and talk to each other rather than just the educator (Neergaard & Christensen, 2017). The course aimed to allow students

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to explore their entrepreneurial self-awareness: awareness of their own inherent entrepreneurial qualities and how these might be used in an entrepreneurial future. Further, it provided students with tools, which help formulate ideas, using storytelling and creativity exercises to fine-tune the idea, and to effectuate and commit to bringing the ideas to fulfilment.

We purposively sampled four interventions. Each introduces unfamiliar and unexpected activities that force students to step outside the ordinary and traditional educational process. The interventions were i) draw an entrepreneur ii) Symbolic Growth Experiences (SGE) iii) out of the box and iv) flashmob. The first aims to articulate and challenge students' taken-for-granted notions of entrepreneurship. Further, it challenges the belief that entrepreneurial qualities cannot be learned or that the students do not fit a perceived ideal. The second focuses on understanding the role of those implicit boundaries that we encounter throughout our lives and how they influence what we think is possible. It encourages a realisation that our past as well as other people's perceptions can place constraints on our modes of behaviour and potential to act. Thus, it opens up different possibilities for different future opportunities and visions for the self. The third assists students in connecting past existential experiences with their potential for future action. It builds on the momentum created and students' willingness to share and reflect on the past. The fourth elicits a recognition and acknowledgement of how to deal with emotions that one may instinctively shy away from such as fear, risk, inadequacy and potential humiliation. Thus, each of the interventions is chosen for their link to reflection and emotion. The interventions are further characterized, either as individual or group activity, to include both individual and social elements in transforming student mindsets and habitus. Potential emotional effects were captured by the individual student reflection logs, which were linked to the learning process. The following account provides the rationale for the four interventions:

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Draw an entrepreneur

This intervention draws on the bird-in-hand principle (Sarasvathy 2009). Each student is asked to draw an entrepreneur and then write down five qualities for their entrepreneur. The students share their drawing with a fellow student and talk about the five qualities, similarities and differences. There are two important parts to this intervention, which are pedagogically connected and relevant for the nudging to have an effect. The first concerns the physical drawing of the entrepreneur, which forces the student towards a concrete awareness of their preconceptions about entrepreneurs – as physical beings, made up of specific 'qualities'. The second part concerns the plenary discussion. This provides a 'class picture' for the educator about the range and depth of understanding that the students bring with them to class (the extent of their current socialization). It also helps bridge the gap between the student and the fictive entrepreneur and highlights that the students already have some entrepreneurial qualities, which they may not have realized previously. The exercise is repeated at the end of the course as a tool to map if and how the individual student has changed their way of thinking about the image of an entrepreneur.

Symbolic Growth Experiences (SGE)

This intervention is inspired by Frick's (1987) work on SGE. The educator asks each student to draw a timeline showing important events in their lives. They are asked to pick one event, which was instrumental in changing the way they behaved. As this is a very personal exercise, it is carried out individually as a written assignment, which is only shared with the educator. In class, following the assignment, the students are invited to reflect on their learning from the SGE. What was it that changed? Why was this experience important for this change to take place? The educator gauges whether the students are able to discuss in pairs, in groups or in a whole class discussion, depending on the experiences disclosed in the assignments.

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Out of the Box

This intervention builds on Bourdieu's (1977) ideas on social capital, culture and habits. The students are asked to bring a cardboard box with them. They stand in a circle, which includes the educator, all placing their cardboard box at their feet. The educator begins by discussing how culture, traditions, the ways 'we do things', conforming to conventions can sometimes make us feel like we are 'in a box'. The educator starts by disclosing a situation where she felt she was boxed in, which provides psychological safety and a permission to share and be vulnerable. Students are then asked to step into their boxes and to share examples of when they last felt that they were 'in a box'. Questions are asked about student experiences of conforming and fitting in. A discussion follows about how we learn to 'fit in' to do things that 'are expected' and what happens when we go against the flow. The discussion is often about whether they have felt (un)comfortable about a situation, how other people can help us feel less (un)comfortable. Finally, the educator asks "what you need to do to break out of your box" and "what have you done previously to break out of your box", before students physically break the box. Breaking the box symbolizes the idea that we can be somebody different.

Flashmob

This intervention is also inspired by Sarasvathy's crazy quilt ideas (2009). It is carried out in teams. It introduces uncertainty, ambiguity, and nudges students out of their comfort zone. The educator prepares the students by discussing with them how they can engage people from within and external to their networks in a flashmob. The exercise highlights the need to take risks, to secure buy-in (stakeholder commitment) by persuading other people (friends and family) to come on board. The flashmob should build on the skills or experiences of one or more group members and contain a 'message'. They are asked to plan whom they are going to approach to create buy-in and how they

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are going to persuade these individuals. The flashmob has to be carried out in a public place and must be videoed and uploaded for the rest of the class to view. The videos are then shown in class and discuss for example what was difficult for them, what did they fear, how did they get buy-in.

Scaffolding learning through reflection logs

The four interventions are further supported through scaffolding (Neergaard and Christensen 2017). Equally important to the debriefings that follow each of the interventions is a reflection log to assist students reflect on their learning. The log is handed in after each module. Students are asked to respond to three questions focused on specific elements of the teaching, e.g.: What were your feelings when you were preparing the flashmob as opposed to afterwards (affective)? Reflect on your understanding of the nature of risks an entrepreneur takes (cognitive). Reflect on what it would take for you to become an entrepreneur (conative). These reflection logs are also used in debriefing. Ultimately, the reflection logs describe how the interventions affected students' perception of self and provided valuable insight into their individual development process.

Data Collection and Analysis

The qualitative data collection took place over three years, six courses and 168 hours of classes. One of the authors of this paper, an educational ethnographer, closely followed the first cohort of the course, taught in two different countries and interviewed students of both genders and of different nationalities. Ethnography entails an encounter with the 'other'; an immersion in another world in order to understand how this other world works. Educational ethnography means participant observation in the classroom during teaching, of group work and interactions between students and students and educators as they arise. Both the students and the educator are of interest to the researcher. For example following an individual or group of individuals around, and being with them

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and understanding them in situ. The ethnographer then uses these experiences to produce narratives and to analyse and reflect on what can be learned from the observations (Hammersley & Atkinson, 2007). Further data were gathered in the form of reflection logs and other material. In total 145 international students completed 1015 reflection logs, of which 290 were directly linked to the four interventions described previously. Students were asked, after completion of the course and grades were given, if they would agree to let their reflection logs be part of the research provided anonymity was retained. All agreed. The reflection logs are individual records of the student's personal learning journey. Reflection logs do not suffer from the same kind of biases as quantitative surveys or interviews because i) they are led by the student and not the researcher, textually capturing what is important to the student; ii) they are not used to evaluate the student but as a reflection of their learning; iii) students are not assessed on the quality of their reflections as these are intended for the student's own development. Table 1 illustrates the multiple sources of data and the period covered. The unit of analysis is the experience of the student.

INSERT TABLE 1 ABOUT HERE

Other secondary material consisted of drawings, Critical Learning Experience maps and videos. In addition, observations of the classroom activities from both countries were undertaken, and selected students were interviewed pre- and post-course about their expectations and their learning. The observations were primarily undertaken to assist the educator in improving the course and understand potential cultural differences, which is why they were only conducted at the early stage of the research, but ultimately these enabled the researchers to contextualize student reflections.

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At the analysis stage, an educational sociologist was invited to join the educator and ethnographer to bring in someone who was not involved in delivery or data collection, offering an unbiased perspective. Two of the three author researchers read all reflection logs, discarded those that were either 'outliers' or did not contain information useful in answering the research questions. Indeed, reflection logs varied in quality, some were very short and some did not answer the reflection questions asked, e.g. some merely reported on the content of the teaching rather than on their own learning. if asked what s/he learned today a student might reply what the teacher had taught. Extracts from the reflection logs are provided in tables 2, 3 and 4 as 'representative quotes' illustrating student identity transformation.

The three researchers then independently coded the sampled reflection logs. We combined the guidelines for grounded theory (Strauss & Corbin, 1990) with constant comparative analysis (Jack et al., 2010), and Gioia's (2012) approach, as the latter two build on the first. The coding process thus applied a multi-step analytical model to enhance the transparency of the analytical procedure. We first undertook an open, attribute or first order coding in which we elicited codes from the students' reflections on their experiences; second, we performed axial, thematic or second order coding, which we used to construct categories, and third we performed selective, comparative or third order coding. The coding procedure differs from the more grounded template of the above approaches, in that we allowed our prior theoretical framework to influence the generation of codes alongside an inductive evolution of themes derived directly from the data (Lapadat, 2009). We reiterated this process numerous times and revisited our data over and over in order to make sense of the material. We finally arrived at 41 first order codes, which were reduced to nine second order categories, which were finally aggregated into three third order dimensions. The three aggregate dimensions derived were: (1) footprints in the mind, (2) see-sawing between identities, and (3) learning to climb trees. The process is illustrated in Figure 2 and further discussed in the next section.

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In sum, we provide an ethnographic account, which is substantive, processual and contextualized (Hammersley & Atkinson, 2007) and a model of what happens with student habitus in the classroom, which is built partly on theoretical insight and partly evolved out of the data on a more practical level.

INSERT FIGURE 2 ABOUT HERE

Although the findings cannot be generalized statistically, they can be subjected to both theoretical and analogical generalization (Smaling, 2003). The former involves contrasting pre-existing understandings with observed events to extend existing theory (Lee et al., 1999); the latter implies that the setting in question has characteristics that are recognized by and resonate with the reader (Neergaard, 2007).

ANALYSIS OF FINDINGS

In the following we elaborate on the three aggregate dimensions arising from our analysis. We argue that, in a process consisting of the three steps, pedagogical nudging techniques help to (i) expose and challenge the student habitus by planting footprints in the mind; (ii) straddle the divide between student and nascent entrepreneur by enabling them to recognize and experiment with an entrepreneurial habitus and (iii) figuratively learn to climb the entrepreneurial tree by embracing an entrepreneurial habitus. In the first step, we use the interventions as cognitive means of exposing and challenging   student habitus. In the second, students take part in an iterative meaning-making

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process through reflection both in class debriefs and in their reflection logs. In the third and final step, they internalize or embed the 'new' entrepreneurial habitus – or discard it. We display our model of the habitus transformation process in Figure 3. In discussing each element in the model, we provide an in-depth understanding of the specific underlying mechanisms that drive each of the categories. The arrows in the figure represent procedural, rather than causal, relationships. In choosing the illustrative quotes in Tables 2, 3 and 4 we have picked out those from the total of the data material that optimally illustrate our points. As in all qualitative research, this process involves a considerable element of interpretation. Therefore, the quotes do not necessarily mention entrepreneur/-ial/ship but since the context is an entrepreneurship course, they are naturally all related to this topic.

INSERT FIGURE 3 ABOUT HERE

Dimension 1: Footprints in the mind

Three categories emerged from the data, characterizing how students interpreted what happened as a result of participating in the interventions: (i) emotions and affect, (ii) stories, (iii) awareness. In Table 2 we illustrate this dimension, its sub-themes and representative quotes.

INSERT TABLE 2 ABOUT HERE

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Emotion and affect serve several important functions and are central to human survival as they prompt appropriate action, whether to embrace or avoid people or situations (Jaggar, 1997). It is recognized that emotions, whether positive or negative, provide SGE, leading to better retention of cognitive material (Schwabe and Wolf 2009). Indeed, they posit that in order to create lasting impressions, which are central to internalizing learning and enabling future recall, it is necessary to (i) invoke strong emotions, (ii) understand and articulate oneself, and (iii) become aware of the mindset it takes to become an entrepreneur. According to Cardon et al's (2009) work on passion, this particular emotion is an essential part of a person's self-identity. All the interventions emphasize emotions and affect, but to varying degrees. The 'draw an entrepreneur' activity only requires that students talk about the emotions related to being an entrepreneur, hence they do not have to commit themselves in the same way as they do when stepping into and out of the box. Recalling SGEs also requires the students to express their emotions concerning a particularly difficult situation, which can trigger an emotional reaction. One student narrated a story about suffering from anorexia. Even though it was a huge emotional challenge, she decided to tell her group about her struggles. In her reflection at the end of the course she told the educator that she had learnt that anorexia did not have to define her future but that she could be an active agent herself. However, by far the most emotionally powerful intervention is performing a flashmob in a public setting. The majority of students find the assignment very challenging and stressful. Some go to the length of trying to disguise themselves with scarves, hats or sunglasses. Most notable, however, is that fear of performing is outweighed by a feeling of relief when it is over. Hence, next time they have to perform something with which they feel inherently uncomfortable, such as contacting a potential stakeholder, they know that they can do it.

Storytelling skills are valuable tools in the creation of enterprising behaviour and entrepreneurial activity. Indeed, the narrative tradition suggests that identity and understanding are narratively structured and that it is possible to narrate new opportunities and (entrepreneurial) identities into

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being (Fletcher, 2006). Thus, using narratives and storytelling in the classroom create a world in which the students can act entrepreneurially. Stories further constitute a powerful part of entrepreneurship, appealing to emotions and helping connect the listener and the storyteller, and they assist the student in recalling the events at a later date. Indeed, entrepreneurship involves the ability to construct and communicate stories in ways that enable and produce action to make stories (dreams) come true (Lounsbury & Glynn, 2001). Moreover, according to Stephens et al (2010) stories help plant ideas, thoughts and emotions in the listener's consciousness. Most of the interventions included here activate the students' ability to tell a story. The 'out of the box' requires that they tell small stories about when they have felt 'boxed in'. The SGE is articulated as a written story about one particularly challenging situation and the reflection on this has a significant effect, as evidenced by the quote '*The exercise of writing a story about a certain happening in my life made me realize the importance of reflecting upon my experiences. By writing the story I really got to think about what was really the deal with that experience and to reflect on how I can use this in my life now and in the future.*' Finally, in order to create buy-in for the flashmob from stakeholders, students have to create a convincing story about their activity.

Entrepreneurial awareness has been addressed by several scholars and most agree this is an important precursor for entrepreneurial intentions, and that most education should start by stimulating entrepreneurial awareness before focusing on developing skills (Fretschner and Weber 2013; Linan et al 2011; Fayolle and Degeorge 2006; Mueller 2007). They also concur that entrepreneurial awareness should be taught as early as possible, because awareness is important for choosing entrepreneurship as a career path. While this literature is mainly focused on awareness of the business creation process (Fayolle & Degeorge, 2008) and opportunity awareness (Linan et al., 2011) entrepreneurial self-awareness is ignored. This type of entrepreneurial awareness involves becoming aware of your own abilities rather than awareness of potential opportunities. Peterman and Kennedy

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(2003) demonstrated that individuals, with low positive awareness of entrepreneurial experience prior to following an enterprise program, recorded significant changes in their perception of starting a business on completion of it. The 'draw an entrepreneur' intervention particularly caters to raising awareness of entrepreneurial qualities that students already possess and how to develop those that they do not possess. Role models such as Steve Jobs, Bill Gates and Richard Branson tend to be too far removed from who the students are. One student explains that she '*drew a girl because it was just natural to her'*. Another student expresses the realization that becoming an entrepreneur lies in the '*attitude such as seeing possibilities, solutions or seeking way of improving our everyday lives, not giving up when faced with challenges and believing in oneself'*.

Dimension 2: See-sawing/straddling the divide

Three major theoretical categories were identified in the students' struggle to deal with the student-cum-entrepreneur identity duality. These were (i) disorienting dilemmas, (ii) identity challenges and (iii) sharing and collaboration. Table 3 illustrates the dimension, its sub-themes and representative quotes. The first theme is closely connected to emotion and affect in the former dimension, however, here the focus is on the dichotomous feelings that arise from going through the process.

INSERT TABLE 3 ABOUT HERE

Disorienting dilemmas usually lead to critical reflection, which transforms the students' mindset and enables them to act upon this. Disorienting dilemmas have the ability to invoke a variety of emotions in students (Roberts, 2006), which are triggered when the limitations of students' current knowledge

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are highlighted. Students voice these dilemmas both in the learning logs and in class, where some question the wisdom of the format, stating that they want 'traditional lectures' instead of round-table discussion, or that they want the power-point up front rather than after class. It is clear that students find safety in familiar approaches. The exercises reveal that students' current understandings of entrepreneurship, entrepreneurs and of themselves, may be open to question and that ideas they consider as 'settled' and taken-for-granted, are potentially more complex. This opens up spaces of uncertainty, where they begin to question, not only their previous understandings and expectations but also the way they have previously approached an educational course and their role as a student within this. Likewise, in encouraging students to participate in activities that pose a psychological risk, they struggle with the suggested 'costs' and benefits of taking part and also acknowledge that they would previously have avoided such activities. However, the team-based element of tasks such as the flashmob means that they are faced with the dilemma of letting down the team if they do not fully participate. Such dilemmas bring into focus their unreflective and automatic 'habitual' approaches, whilst at the same time challenging them to act differently.

Identity challenges occur when students become aware of their unreflective responses to, for example, staging a flashmob. They might consider that 'people like me' do not engage in such activities but, with their teams relying on everyone's participation, they are nudged toward activities, which they would have previously avoided. This forces them to reflect on the 'lack of fit' between current habitus and the field of entrepreneurship. In completing the challenges and tasks they start to see themselves as people who *can* and *do* deal with uncertainty. They recognize that their (student) habitus constrains them and potentially insulates them from new and valuable experiences. However, this causes discomfort as they are nudged to reflect on their previous behaviours and their sense of identity as students, who may never have considered themselves as being entrepreneurial or having entrepreneurial potential. These are situations that they never would have experienced

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previously within an educational setting. This encourages them to think about the opportunities and rewards of acting differently in situations, both within the setting of the course, but also in their reactions and behaviours outside education, and in their personal and professional lives after the course. One student mentioned that he is *'now constantly looking for opportunities and trying to match them with my surroundings and being aware of how I think and why which will help me break out of it ... instead of being stuck in the old ways'*.

Sharing and collaborating help students to explore their inner self, identity, and their beliefs about and in themselves and others. SGEs highlight student capabilities and how learning has shaped their way of acting in the world. These, coupled with the flashmob, link individual competences to social action in the outside world, mirroring what entrepreneurs actually do. Such techniques assist student understanding of the interplay of their habitus and capital and the conversion of different forms of capital, to support changes in the individual habitus. In coping with challenges to their identity, students appear to gain confidence and insight from watching and acknowledging that their fellow students (who are people 'like them') also experience similar discomfort and engage in similar intense reflection. Indeed, the sense that *'we are all in this together'* facilitates their willingness to adopt new approaches and nudges them to respond differently. They also feel a sense of responsibility towards their group and class members, underlining that entrepreneurship is not necessarily linked to individualistic behaviours but also involves group-based problem solving and affective experiences. They recognize that everyone is experiencing disorientation and identity challenges and this becomes an ongoing cycle throughout the course.

Dimension 3: Learning to climb trees

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These three categories link to notions of transformation: i) transforming understanding ii) emancipation and empowerment and iii) formation of a new identity. In Table 4 the transformative potential of the interventions is illustrated through quotes at each level.

INSERT TABLE 4 ABOUT HERE

Transforming understanding takes time and a short-term course can only initiate the process. Nevertheless, these interventions appear to help students take the first steps towards transformation. In class a student expresses the transformational process of becoming: "*It seems that in order to move forward and learn something new, we need to understand ourselves and our learning from the past, and how these have affected us as human beings. Then we can make a conscious effort to either enhance or change the behaviour towards what we really want.*" This represents a transition from feeling like a 'fish in water' (Bourdieu & Wacquant, 1992) – navigating fields, such as education, where we know the rules of the game - to trusting a process that makes us feel like a 'fish out of water'. Many students felt challenged on a number of levels. For example, they were required to reflect on their values, attitudes, behaviour, routines and self-narratives, which at times challenged their perceptions of themselves causing 'emotional fallout' (Mayo et al., 2012). Such reflection is deeply personal and requires students to question why they do what they do and think the way that they think. Having said this, once students became comfortable with such identity threats (Dean & Jolly, 2012), many also became aware of their new opportunities.

Emancipation and empowerment underpin student reflections. They start to understand that the abilities learned are useful for engaging with enterprising activities as an everyday practice

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(Robinson et al., 2016). Students become aware of their qualities and start to see the world as full of possibilities for enterprising action. They also become aware that their values, attitudes, beliefs and behaviours are often routinized and unreflective. Opportunities for reflection encourage students to re-appraise how they approach life, prompting new perspectives. One student noted: *The course has empowered me. I now feel I have at least the beginning mindset of an entrepreneur and the basis for developing entrepreneurial opportunities.* Taking risks, challenging one's own boundaries, daring to go higher than before, emancipates and transforms an individual's potential to perceive themselves differently. Here, the student acknowledges a change in habitus and capital and that she has learned some of 'rules of the game' that she can draw upon in any future enterprising activities (Cajiao & Burke, 2016). This is in line with Massumi's (2009) observations that micro-perceptual jolts can enhance the general feeling of empowerment.

Formation of a new identity: While we do not suggest that all students become entrepreneurs, or change the way they think and behave, we propose that the interventions *linked* to reflection are powerful tools for change (Baron, 2008). However, the interventions in themselves are not sufficient unless they are combined with guided, critical, action-focused reflection. Whether this remains at the individual level or is discussed in class should be left up to the individual teacher and group of students. The students' ability to reflect varies enormously but, with practice, the potential of learning from reflection is enormous. One student remarks: *I am definitely more aware of my skills and the skills of people around me, and the course has taught me to think and act more entrepreneurial. It has shown me that being an entrepreneur is very hard work and reflecting on the course and the stuff that we have discussed, I am not sure whether or not being one is the best choice for me.* This demonstrates that he has a better basis for making a choice after the course. Another student explains: *My most important learning is definitely that I've started to see the world in another perspective. I'm now constantly looking for opportunities and trying to match them with my*

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surroundings. I've also gained a belief in my potential to become an entrepreneur, as I'm now confident that everybody can do so – it only takes the right mindset. I really think that I have come closer to myself meaning that I've actually learned a lot about myself and my competences. Thus, students have opened up their space of possibilities, through understanding that they are able to change themselves as well as influence the world around them. Reflection upon discomfort allows them to scrutinize habitual practices.

DISCUSSION

The analysis has shown that students' perceptions of entrepreneurship changes in a transformative learning environment. Pedagogical nudging as cognitive means of influencing catapults students into an iterative meaning-making process through reflection resulting in a new, enhanced understanding of self. Thus, if the goal of EE is to achieve *transformative learning* then educators need to be aware of the pedagogical mechanisms that support and promote such learning. However, when students cognitively acknowledge and recognize what they do and how they (re)act in everyday situations, they take the first step in making sense of themselves and the world around them. When routines remain un-reflected, learning of the transformative type will never take place (Mezirow, 2000). Exposing students to and making them aware of un-reflected routines and patterns of behaviour allow these to be challenged. Indeed, the transformative potential of learning will only be achieved through emotional engagement (Shrivastava, 2010). The strong link to affect and emotion, heightened awareness of routines and patterns of behaviour all influence the habitus that individuals draw on in everyday life. In the preceding analysis of the empirical evidence, emotions permeate most of the theoretical categories, thus confirming that working with emotions is an important element for learning in EE (Shepherd, 2004).

We have shown that pedagogical nudging enables students to draw on previous learning linked to emotions when they need to make sense of a new situation. It may therefore be important to elicit strong emotions for several reasons: (i) events connected with strong emotions are easier to recall (Sutherland and Gosling, 2010); (ii) entrepreneurs are passionate and intrinsically motivated individuals, so students need to turn from being extrinsically motivated by grades to being intrinsically motivated by their own achievement; (iii) students start to 'feel' the life-world of the entrepreneur (Gibb, 2011). Our analysis shows that they can do that in other ways than setting up a business; in fact, it may be helpful for students to have certain experiences in the safety of the classroom.

When we introduce students to 'unexpected situations' that disorientate and challenge them to behave differently, they are provoked to think about the opportunities and rewards of acting differently. Their reactions and behaviours in their personal and professional lives after the course are also affected. This resonates with Navarro's (2006:16) suggestion that habitus 'is not fixed or permanent, and can be changed under unexpected situations' (Navarro, 2006: 16) and with Horvat's (2003:7) argument that habitus represents *'an individual's internalization of possibility'*.

When students take part in an iterative meaning-making process through reflection that involves i) sharing and collaborating with others in a similar situation, ii) disorientation about their own identity, and iii) identity challenges, they are challenged to experiment with 'identity-based threats', to try on different 'professional identities' (Dean & Jolly, 2012; 241) to make sense of who they are and who they might become. Students see-saw between identities, as potential, fictive and desired.

This phase of the process is iterative, messy and complex therefore, meaning-making through continual reflection is central (Freire, 1970). The process of transformative learning linked to these strategies appears to cause tension and difficulty for students, who see-saw, waiver and vacillate between their usual ways of being, and the different, more challenging (and scary) ways of

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approaching the classroom. In recognizing a lack of fit between habits and field students have two choices: either to stay, and consciously try to learn and adapt to the 'rules of the game' in that field, or to withdraw if the potential losses to our sense of self outweigh the potential gains (McNay, 1999). Lee and Kramer (2013:21) argue that such difficulties are caused by *'moving between 'worlds', and the challenges of fitting existing relationships and personal beliefs in new status contexts'*. According to Stryker and Serpe (1982) identities are 'reflexively applied cognitions' that answer the question "Who am I?" (cf. effectuation) and in becoming an entrepreneur, individuals usually have to renegotiate their identity; their cognitive schema (Rae, 2005). This holds particularly true for the student, who struggles with the duality of a student-cum-entrepreneur identity. Reflection in the 'see-sawing' phase allows them to become disorientated, to move between seeing themselves as potential entrepreneurs and to question their concept of themselves (as students). As entrepreneurship educators, it is important to be aware of the difficulties and tensions that EE may cause and that some of our students may resist any change or transition between two 'worlds'. Indeed, "*when new information is too surprising individuals tend to obstruct its assimilation and develop psychological defence mechanisms*" (Mayo et al., 2012:634). We should accept that not all students will be transformed. This should neither reflect negatively on the student, nor the educator, given the complex and challenging nature of transformative learning outlined by authors such as Mezirow (2000) and Vygotsky (1978).

Further, students feel empowered, take on new identities and embrace the potential of entrepreneurial habitus when new heights are reached and new visions are made possible. The consequences of accepting challenges, and combining this individual potential with social action, transforms understanding of self (one's identity), self with respect to others (relationships and resources) and self with respect to what one can achieve (thinking and acting differently).

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The analysis demonstrates how an exploration of the inner self, identity and beliefs develops the capacity for students to re-shape future outcomes and create value. By being aware of pedagogies that nudge, educators can support students to develop new ways of acknowledging and coping with personal transformation. Students become aware of their own qualities and they start to see a world filled with possibilities for enterprising action. However, the analysis shows that the process needs to be carefully-guided because pedagogical nudging without reflection does not work – it is the *reflection* on the micro-perceptual shocks that actually promotes insight.

PERSPECTIVES, IMPLICATIONS AND VALUE

This paper has identified and discussed three dimensions, which (i) take students beyond the unacknowledged and unarticulated boundaries of self and challenge the student habitus, (ii) enable students to experiment with and recognize their entrepreneurial habitus and (iii) embrace their entrepreneurial habitus. In the following, the practical and theoretical implications of the findings are addressed.

Implications for educators

Pedagogical nudging may be able to unlock doors and bring students beyond the unseen boundaries of the self, towards the kind of learning (growth) that develops self-efficacy and an entrepreneurial mindset. The empirical work documents and analyses the lived experience of students in engaging with entrepreneurship and the development of their understanding around the 'rules of the game' within the field of entrepreneurship. These sometimes clash with the suggested rules of the game in the field of academia and/or the field of employment. Therefore, care must be taken in creating an environment supportive of transformative learning that will facilitate 'identity work' (Nielsen &

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Lassen, 2012), encouraging students to put their identity, their student habitus and their understanding of their place in the world 'at risk'. This can be achieved through experimentation and mimicking entrepreneurial action. Indeed, orchestrated imitation may help accelerate the learning process, since mimicking is effective at creating lasting memory and behavioural change (Blakemore & Frith, 2005). However, not all learning environments are suitable for pedagogical nudging. Indeed, it is likely that institutional norms around assessment may impact on educator agency and ability to so engage. Nevertheless, there is huge scope for educators to develop their own interventions, inspired by theory.

Creating a learning environment, where these experimental forms of identity work can take place, is only possible if there is trust between the educator and the students and among the students. Communication about expectations (on both sides) must therefore be open and explicit and careful planning of interventions, coupled with explanations about learning goals and possible outcomes, is central to this endeavour (Neergaard & Christensen, 2017). The pedagogical nudging interventions described here provide examples of a practice that promotes, strengthens and develops learning beyond the limitations of most existing practice.

In developing these interventions, it is important to consider how they impact differently on different students. We are not coercing students to follow a specific path that they do not want, need or aspire to follow; we are simply opening up a door to a different set of opportunities or experiences that will enhance students' ability to better choose their own path in the future. Indeed, in early iterations educators were confronted by a recurring problem: students did not actively engage with the process but focused on the outcome – how to achieve a good grade. Although this behaviour is prevalent in academic courses, the educators need to generate and nurture intrinsic motivation and critical reflection as necessary elements in the process of becoming (more) entrepreneurial (Carsrud & Brännback, 2011; Cope, 2003).

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Theoretical Implications and Future Research

Theoretically, the idea that we can use pedagogical nudging to move our students towards more entrepreneurial behaviours through opening them up to new experiences is possibly not novel, but so far there has been little research or discussion in EE that documents how it is possible and the potential effects. It would therefore be useful to investigate if different settings require different interventions and document the extent of educator and researcher effects. Further, we do not know sufficiently about how pedagogical nudging can advantageously tap into emotions. Often entrepreneurship pedagogy is designed without adequate reflection and how emotions are connected to learning, even if we know that emotions play a major role in learning (Shepherd, 2004).

Methodologically, we have gone beyond using quantitative surveys of ESE and traditional self-reporting questionnaires/interviews to report student experiences of learning. The use of reflection logs or learning diaries in which the unit of analysis is the experience of the student constitute a preeminent source of data as they provide evidence from reflection, learning and experience (Friesner & Hart, 2005). The use of the students' own words to describe their experiences are thus a more accurate source of data than surveys, which are based on the researchers' preconceptions and are often placed in fixed categories among which the respondent needs to select. We therefore suggest that future research in EE would benefit from applying this approach.

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Theoretical underpinnings

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- Emotional connection, resonance
- Fear of failure
- Passion and dedication
- Need for achievement, ambition
- Relief

→ Emotions and affect

- Importance of past as part of the present and the future in present
- Constructing personal stories
- Appreciating positive experience
- Learning from negative experience

→ Narratives

→ Footprints in the mind

- A heightened sense of self
- The importance of others
- Seeing things in a different light
- Recognizing the qualities needed
- Confronting potential challenges

→ Awareness

- Scary but happy
- Nervous but fun, exciting
- Frightening but inspiring
- I thought I couldn't but I can

→ Disorienting dilemmas

- Exposing unhelpful behaviour
- Changing habitual responses

→ Identity challenges

- Facing challenges together
- Supporting each other
- We are all in the same boat
- Building confidence together

→ Sharing and collaboration

→ See-sawing/ straddling the divide

- Changing the narrative
- Changing behaviour
- Changing attitude
- Changing beliefs
- Seeing new perspectives
- Seeing ways of improving life

→ Transforming understanding

- Resilience
- Perseverance
- Becoming a better version of you
- Escaping the box
- Enhancing confidence

→ Emancipation, empowerment

→ Learning to climb trees

- New attitudes
- New behaviours
- New potential
- A changed vision of what might be
- New perspectives
- Thinking and acting more entrepreneurially

→ Formation of a new identity

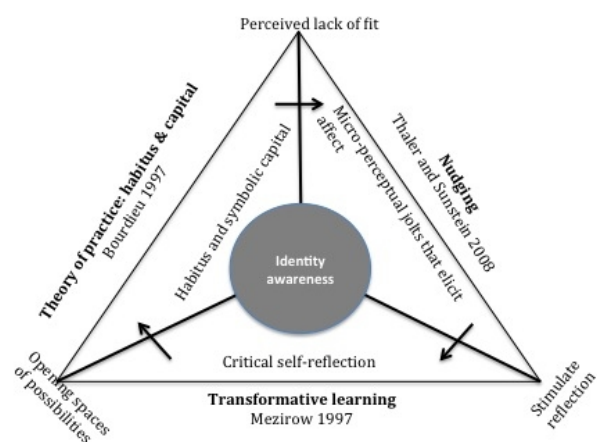Data structure overview

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Footprints in the mind
Exposing and challenging
the student habitus

See-sawing, straddling the divide
Experimenting with and recognizing
the entrepreneurial habitus

Learning to climb trees
Embracing the
entrepreneurial habitus

Emotion, affect

Awareness

Narratives

Sharing and collabor-ation

Disorient-ation

Identity challenges

Transforming understanding

Emancipation, empowerment

Formation of new identity

Cognitive means of influencing

An iterative meaning-making process through reflection

Embedded through experience, situated learning

The habitus transformation process

254x190mm (72 x 72 DPI)

Table 1: Multiple sources of data and period covered

Year	2012	2013	2013	2014	2014	2015	Total
Time and place	Autumn Setting 1	Spring Setting 2	Autumn Setting 1	Spring Setting 2	Autumn Setting 1	Spring Setting 2	6 courses
Student numbers	22	30	28	27	17	21	145
Total individual reflection logs	154	210	196	189	119	147	1015
Sampled reflection logs	44	60	56	54	34	42	290
Drawings pre and post	44	60	58	54	34	42	292
CLE essays	22	30	28	27	17	21	145
Flashmob videos	4	6	5	5	3	4	27
Observation hours	28	28					56

Table 2: Excerpts of data supporting interpretations of footprints in the mind

Sub-category	Representative quotes
Theoretical category 1: emotions and affect	
Emotional connection, resonance	The depth of a footprint depends on the strength of emotional experience it creates. I felt emotional writing about my critical learning experience.
Fear of failure	Sometimes things are worse in your mind.
Passion and dedication	You definitely have to be passionate and 100% dedicated. It is hard work.
Need for achievement, ambition	You need to want it bad enough.
Relief	I felt happy afterwards.
Theoretical category 2: narratives	
Importance of past as part of the present and the future in the present	The stories of our past are what make us the person we are now and will become in the future. Reflecting on them makes you realize why you are as you are today. Personality is shaped during the whole course of your life. Stories bring back the past experiences and reminiscences. Any story I hear leaves a footprint in my memory.
Constructing personal stories	The exercise of writing a story about a certain happening in my life made me realize the importance of reflecting upon my experiences. By writing the story I really got to think about what was really the deal with that experience and to reflect on how I can use this in my life now and in the future. Stories are a huge part of our lives.
Appreciating positive experience	The positive ones (stories) I appreciate a lot.
Learning from negative experiences	The negative stories are the ones I am trying to learn from.
Theoretical category 3: awareness	
A heightened sense of self	Understanding/knowing oneself is important.
The importance of others	It is more about how you act in the process and perhaps the people you decide to work with.
Seeing things in a different light	Hopefully, being aware of how I think and why will help me break out of it and see things in a different light instead of getting stuck in old ways.
Recognizing the qualities needed	Entrepreneurial thinking has to do with mindset and attitude.
Confronting potential challenges	Challenges and hardships can be used as a positive force to drive someone forward. People who face challenges and hardship, sometimes persevere just to prove they can do it.

Table 3: Excerpts of data supporting the interpretation of see-sawing/straddling the divide

Sub-category	Representative quote
Theoretical category 4: disorienting dilemmas	
Scary but happy	It was definitely out of my comfort zone, doing things that I would normally never do. But at the same time it was funny.
Nervous but fun, exciting	Just before I was nervous, but during I didn't think about it that much and afterwards I though it was kind of funny.
	I am not nervous but excited.
Frightening but inspiring	It is about daring to try new things and never be afraid of losing face.
I thought I couldn't but I can	Some things are worse in the mind; we make it worse than it actually is.
Theoretical category 5: identity challenges	
Exposing unhelpful behaviour	I have to become better at improvising on a daily basis.
	The influence from life experiences made me think about what sort of box I am in.
Changing habitual responses	We calculate too much instead of just trying
Theoretical category 6: sharing and collaboration	
Facing challenges together	We are ready to help each other through it.
Supporting each other	In my group we were convinced we would support each other and make the best of it.
We are all in the same boat	We are in this together.
Building confidence together	We discussed what and how in the group and found it very challenging to do it.

Table 4: Excerpts of data supporting the interpretation of learning to climb trees

Sub-category	Representative quote
Theoretical category 7: transforming understanding	
Changing the narrative	I have learned and thought a lot about why I do what I do and think the way that I think.
Changing behaviour	It is how you act in the process and which people you decide to work with that is important.
Changing attitude	Now I know that everyone can become an entrepreneur and there are many ways to do it.
Changing beliefs	My beliefs about becoming an entrepreneur have changed. I now believe that it is the attitude and ability to see possibilities, solutions or seeking ways of improving everyday lives and not giving up that characterizes an entrepreneur.
	Belief in oneself is of the essence. Nothing will happen to the individual's idea, if they do not truly believe in themselves and their own abilities.
New perspectives	I have started to see the world in a new perspective.
Ways of improving life	Previously I held the belief that entrepreneurs were a certain type … but now I believe that it is their attitude such as seeing possibilities, solutions or seeking ways of improving everyday life.
Theoretical category 8: emancipation, empowerment	
Resilience	Entrepreneurs are resistant, have a drive and they really believe in what they are doing.
Perseverance	Challenges and hardships can be used as a positive force to drive someone forward. They simply refuse to quit.
Becoming a better version of you	Becoming aware of my mindset could help me think differently or alternatively.
	The course has empowered me.
Escaping the box	I could feel the strength in the moment I broke the box that I was ready to make big changes: think about all of my boxes and step out of each one.
	Escaping the box of everyday life requires a cognitive effort.
Enhancing confidence	I am confident that everyone can become an entrepreneur.
Theoretical category 9: formation of a new identity	
New attitudes	I have come closer to myself meaning that I have actually learnt a lot about myself and my competences.
New behaviours	We can make a conscious effort to either enhance or change the behaviour towards what we really want.
New beliefs	I have gained belief in my potential to become an entrepreneur.
New perspectives	My most important learning is definitely that I've started to see the world in another perspective.
Understanding entrepreneurial mindset	Rather than trying to change the world through some fantastic, never-before-seen invention or trying to become famous, an entrepreneur is someone who is not afraid of and possibly enjoys challenges, even in mundane, everyday situations.

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Referee(s)' and Co-Editor Comments to Author:

Referee: 1

Comments:
Thank you for the opportunity to review this generally well written paper. The paper provides empirically grounded guidance for addressing the emotional and reflective nature of learning to be or become entrepreneurial, as well as calling attention to the challenges faced when determining how to identify with 'entrepreneur-ial'. The paper takes on an ambitious span of theory and current research streams, which are to an extent organized, but in places lacking or somewhat cumbersome to navigate in the current form. Clarifications in positions, further referential base, and more explicit specification in the provided empirics may help transform this paper towards publication.

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication?: As the paper claims, there is limited (but some) qualitative research into pedagogical models contributing to development of entrepreneurial behavior and identity in entrepreneurship education; particularly in terms of habitus. The paper claims i) extension to existing knowledge on transformative learning in the field of entrepreneurship, ii) a model for understanding the link between emotional and reflective practices and the role of transforming student habitus, and iii) pedagogical nudging promoting and emotional response in students.

Transformative learning is addressed most often indirectly in regards to educational development of entrepreneurial competence, but, as claimed by the paper, the field of entrepreneurship would will benefit from more focused attention upon theoretical grounding from Meizrow, for example.
The contribution of emotional and reflective practices towards transformative learning in entrepreneurship education has had some attention in existing literature – ex. Hägg, G. & Kurczewska, A. (2019), "Who is the student entrepreneur? Understanding the emergent adult through the pedagogy and andragogy interplay". Journal of Small Business Management, Vol. 57, No. sup1, pp. 130-147.; Lackéus, M. (2014), "An emotion based approach to assessing entrepreneurial education". International Journal of Management Education, Vol. 12, No. 3, pp. 374-396.; Ilonen, S. & Heinonen, J. (2018), "Understanding affective learning outcomes in entrepreneurship education". Industry and Higher Education, Vol. 32, No. 6, pp. 391-404 – but not in the model form provided in the paper. However, the paper would benefit from further grounding in literature addressing emotional and affectual contributions.

Thank you for highlighting these papers. We have looked at them and found them useful in furthering our arguments. Indeed, Ilonen and Heinonen (2018) argue that there has been little research 'addressing the effect and emotion, particularly the related learning outcomes' (p392) and that the 'number of studies attempting to address attitudinal changes is limited.' (ibid.). Whilst Lackeus (2014) suggests that few articles 'empirically account or when, how and why ... learning environments contribute to the development of entrepreneurial competencies' (p374). Our research addresses these suggested gaps and so it has helped us to strengthen the argument for our research. We also found a useful paper by Jones and Underwood (2017) that outlines the idea of the 'emotional ecology' of the classroom through a review of the literature on the link between emotion and learning in EE and we have also cited this.

The Hägg and Kurczewska (2019) paper does not deal very explicitly with emotion or reflection as theoretical constructs – it is more concerned with Andragogy vs Pedagogy, so we have not drawn on it in this context. It criticizes the idea that students have the capacity to reflect on their experiences as mentioned on page 4; however, the activities described in our paper are specifically designed to encourage and support reflection and such reflection and reflective practices are built up over the duration of the course. We also mention that not all student are equally reflective.

Having engaged with the suggested reading, we argue, in contrast to Ilonen and Heinonen (2018) that pedagogical nudging CAN create a classroom environment that supports affective learning outcomes. Our paper offers insight into how this may unfold for educators and students. Unlike Ilonen and Heinonen, our study compares students from six different cohorts from two courses, in two different countries, rather than just reporting on two cohorts. That being said – although emotion and affect is an element of our research, the

main focus and contribution is the role of nudging in developing a conducive environment for reflection and to elicit emotional responses.

The Lackeus paper is not based on classroom interventions per se, but on students setting up their own business. It focuses on only three students going through the entrepreneurial process. We would therefore argue that our research offers empirically richer insights than these two suggested papers. We have subsequently referenced the papers. However, we could not engage very deeply with them due to word count issues and further explanation needed to address other reviewer comments.

The pedagogical nudging is the most novel contribution of the paper – particularly the suggestion of micro-perceptual shocks emulated in the classroom to stimulate emotional learning – though this concept (pedagogical nudging) has been previously developed in published work which is not referenced in the paper: Neergaard, H., Robinson, S. and Jones, S., 2015. Learning entrepreneurship through climbing trees. In Academy of Management Proceedings (Vol. 2015, No. 1, p. 14914). Briarcliff Manor, NY 10510: Academy of Management.; Neergaard, H., Robinson, S. and Jones, S., 2014. Identity transformation: Learning entrepreneurship through pedagogical nudging. In Institute for Small Business and Entrepreneurship.

We have included the references to these earlier papers.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored? Some potentially overlooked literature has already been mentioned in regards to the previous subject of originality. In the introduction (pg. 1, line 37/38) the paper states that there is scant research that focuses on how students develop an entrepreneurial identity. However, this is not supported by reference nor is there illustration of review of work that has investigated this space, including pieces published in IJEBR. Given the focus of the paper, in particular the intended contribution towards student transformation towards an entrepreneurial identity/behavior, there should be more attention paid to this literature.
For example, pieces like: Donnellon, A., Ollila, S. & Williams Middleton, K. (2014), "Constructing Entrepreneurial Identity in Entrepreneurship Education". International Journal of Management Education, Vol. 12, No. 3, pp. 490-499.; Frederiksen, S. H. & Berglund, K. (2019), "Identity work in entrepreneurship education: Activating, scripting and resisting the entrepreneurial self". International Small Business Journal, pp. 1-22.; Hahn, D. (2019), "The psychological well-being of student entrepreneurs: a social identity perspective". International Entrepreneurship and Management Journal.; Nielsen, S. L. & Gartner, W. B. (2017), "Am I a student and/or entrepreneur? Multiple identities in student entrepreneurship". Education + Training, Vol. 59, No. 2, pp. 135-154.; Williams Middleton, K. & Donnellon, A. (2017), "Learning to become entrepreneurial/fostering entrepreneurial identity and habits", in Duening, T. N. & Metzger, M. L. (eds.), Entrepreneurial Identity: The Process of Becoming an Entrepreneur. Edward Elgar, Cheltenham, UK, pp. 103-126.; Williams Middleton, K. (2013), "Becoming entrepreneurial: gaining legitimacy in the nascent phase". International Journal of Entrepreneurial Behaviour & Research, Vol. 19, No. 4, pp. 404-424.

Thank you for these suggestions. We have read and included those references that assist us best in making our argument. However, much of this research focuses on identity development in relation to starting a venture, not on student identity development in a classroom setting. Of those that do focus on a classroom setting not all are relevant to cite in this connection. Due to word count restriction, we have not been able to engage very deeply with these papers but we have included the following at the end of page 1: With a few exceptions (see e.g. Middleton and Donnellon, 2017), much of the research on classroom activities focuses on identity development in relation to new venture creation, not on how to achieve identity development in the classroom setting by emulating entrepreneurial experiences and learning (Middleton, 2013; Donnellon et al 2014; Nielsen and Gartner, 2017). Indeed, Middleton and Donnellon (2017) call for research that documents the effectiveness of such approaches.

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate? The paper's arguments are for the most part grounded in established theories. The unclear exception to this is the presented description/discussion of habitus – as either something that is fixed or not. The paper is not fully clear in how and to what extent Bourdieu's concepts are the ground of the habitus argument and where the paper deviates from Bourdieu, to what effect and with

what limitations relative to Bourdieu's arguments, particularly on page 6, section 'The Entrepreneurial Habitus in Education'.

As we are focused on transformational learning, we draw on Bourdieu to engage with the idea that entrepreneurship education, in this context, forces the student to reflect on who they are and the learned and habitual responses to different situations and to choose actively between those responses. In this respect we are using habitus to articulate how deeply held and subconscious these ideas are, and how pedagogical nudging can expose and challenge such deeply held habitual ideas. We have added a sentence to make the links between education, transformation of the habitus and transformational learning more explicit on page 6. However, Bourdieu argues that education and learning the 'rules of the game' of a particular field contributes to the accumulation and transferal of cultural and symbolic capital (Bourdieu, 1984; Bourdieu and Wacquant 1992). This can lead to transformation of the habitus ' .... Triggered by the confrontation with novel social challenges' (Koller, 2002:188 cited in von Rosenberg 2016:1487).

*We would argue that the paper does not deviate from Bourdieu. In line with Bourdieu's own arguments, our understanding of Bourdieu is that habitus is not fixed **and can** change over time, when confronted with new challenge and fields. This is also supported by Mills 2008 whom we also cite. Such challenges are field dependent, and linked to a sense of 'fit'. We also hope that the addition of the figure (1) to illustrate our conceptual framework helps clarify these theoretical relationships.*

The methodology applied is consistent with the theoretical perspective, while also providing otherwise less commonly utilized empirics. The span of the empirical data utilized is a strong asset to the paper.

Thank you very much.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper?: The paper builds upon a comprehensive analysis of multiple sources of data (illustrated in Table 1) from which the paper derives findings (conceptualized in Figure 1), with exemplification of how findings are categorized (Tables 2, 3, and 4). The paper argues for a transformative learning towards becoming entrepreneurial, with the last Table (4) to provide representative quotes of students illustrating transformative understanding, emancipation/empowerment, and formation of an identity – specifically in regard to entrepreneurship/being entrepreneurial. In Table 4 in particular, one would expect the quotes to then exemplify the learning towards becoming entrepreneurial, with specific account of entrepreneurship, illustrated for example in use of that or associated terms; particularly given the substantial base from which examples can be drawn (i.e. 290 sampled reflection logs, 292 drawings, 145 essays, and 27 videos, as stated in Table 1). However, only seven of the nineteen representative quotes specifically mention entrepreneur/-ial/-ship. Also, given that the empirical basis is a learning context, the remaining quotes could be seen to exemplify more generic transformative, emancipatory and identity forming – relative to going through an experiential learning process – rather than specific to the phenomenon of entrepreneurship. The results would benefit from further substantiation of the 'entrepreneurial-ness', either through more subject specific quotations, or from clarification of the contextualization of the quotes to help support the entrepreneurial becoming argument.

Thank you for pointing this out. The students do not always specifically mention entrepreneurship, but that is because they are participating in an entrepreneurship course, so they take the entrepreneurship context for granted and therefore talk about it in more general terms. Students talk about their experiences in their own ways; it is up to the researcher to interpret. This is a qualitative study and as such we have interpreted the quotes. Experiential entrepreneurship courses should be aimed at generating confidence, self-efficacy and other qualities that are allied with entrepreneurship. But people do not talk about it in those terms but in relation to themselves. Indeed, the context of the four specific interventions described earlier should make it clear that the comments relate to entrepreneur/-ial/-ship. Further, as we explain, three different researchers have analyzed the data and there is significant congruence on interpretations, so we are confident in the findings.

We have inserted the following in the text just before figure 3: In choosing the illustrative quotes in Tables 2, 3 and 4 we have picked out those from the total of the data material that optimally illustrate our points. As in all qualitative research, this process involves a considerable element of interpretation.

Therefore, the quotes do not necessarily mention entrepreneur/-ial/ship but since the context is an entrepreneurship course, they are naturally all related to this topic.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper?: The paper is successful in bringing less commonly used theories into entrepreneurship education – in particular Thaler & Sunstein's concept of nudging. The paper is ambitious in the span of complex concepts addressed, and thus is not fully clear in the illustrating awareness of existing contributions in literature and how those are complemented or countered by the contributions presented in the paper. The strongest implication if the paper is towards teaching, calling for increased attention to how educators meet the learners they will guide, take account for the existing conceptualizations they bring with them, and create a safe and at the same time challenging 'real' space for the learners to learn about themselves as being entrepreneurial. The paper addressed the potential limitations and challenges of applying pedagogical nudging, mainly in terms of the learning environment – both the institutional norms but also learning space and relationship between the teacher and learner. The paper points to the sensitivity required by the educator, for example first paragraph on pg. 17, but does not call attention to what qualifications may be required to manage this sensitivity, which could be an important discussion to at least bring forward given the broad spectrum of individuals engaged in entrepreneurial teaching and training, and the limited academic training for educating entrepreneurship education at a higher institutional level.

It is a really good question about understanding our own level of experience and reflection and being able to put oneself in the student's place. It goes to the emotional ecology of the classroom – in which the educator prepares and preempts – picks up on body language and making yourself as vulnerable as the students so the students understand that it is ok to take risks and to fail. So thank you for this comment but we think there might actually be a new paper here. Indeed, other educators who have observed the course have commented that they would not attempt the approach as they do not think they have what it takes to cope with the potential emotional responses, which is what we are trying to communicate. One way of addressing the sensitivity is through scaffolding as referenced (Neergaard & Christensen, 2017).

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc. Does the title of the paper adequately reflect the key concepts/ideas/topics addressed? The paper is effective in presenting the grounding theories of transformative learning and pedagogical nudging. The paper is less effective in addressing existing literature investigating students becoming entrepreneurial through experiential learning processes and the connection entrepreneurial identity construction. The use of Bourdieu is not always clear as previously mentioned.

There is a distinction between experiential and transformational learning. You do not necessarily achieve transformation by experiencing something. It is about the emotional impact of the experience. Thus, we are not putting the students through an experiential learning process such as a Venture Creation Programme – that is another kind of experience. Throughout we have described interventions that can assist in a transformative process.
We hope that our explanation in question 3 has addressed the question about how we operationalize and understand Bourdieu in our research and that the addition of our conceptual framework illustrates where Bourdieu's concepts sit within our theoretical underpinning.

On the whole the paper is well written – the language and argumentation flow well. There are a few specific instances in the paper where meaning is unclear or language is awkward, specifically:
• Pg. 1, line25/26 "if students are not cognitive primed to start a business". What does the paper mean exactly by cognitive priming to start a business. An example or alternatively a reference may be helpful in clarifying this statement.

The intentions literature talks about priming individuals to think abstractly; hence with cognitively primed we mean that students may have none or few preconceptions about entrepreneurship as a career option. As they study at business school, they are cognitively primed to become employed either in the private or public sector, not to become self-employed. This explanation we thought was a bit long for the introduction though, and we thought that readers would understand the connotation. We would rather not put in this explanation because it could become rather long and destroy the flow of the introduction.

• Pg. 13, line17/18: "These are situations that they would never before have experienced within an educational setting." - awkward language. Suggest perhaps – These are situations that they never would have experienced previously within an educational setting.

We have changed the formulation according to your suggestion.

The paper is slightly cumbersome in the number of triadic packages presented: 3 research questions, 3 contributions, 3 dimensions presented (and associated 3 metaphors), each with 3 sub-categories, 3 orders in the analytical development. This is quite a number of ordered constructs for the reader to try and keep in the mind while following the argument of the paper. Work to reduce or better organize this complexity would help make the main purpose of the paper more transparent.

The multiple 3's are completely unintentional. We have taken something very complex and tried to simplify it using the approach suggested by the constant comparative approach combined with the Gioia model. This approach has been used previously in other educational papers. The number of dimensions, themes and codes grow out of the data. If we had not drawn on all these different spaces, we would not have been able to understand what is going on. We have tried to organize the findings as logically and as transparently as possible and feel that simplifying further is going to take away from the paper. Indeed, it has taken us 3 years to get the paper into its present form, to tease out the levels and dimensions and how to present the process that takes place. To make this clearer we have added figure 1 to assist the reader in following our train of thought.
Reviewer 2 in comment 4 says "The results are clear and this is due to the use of dimensions for structure. It is great to hear the voice of the participant within the results", *so we have decided not to change the multiple 3's.*

Referee: 2

Comments:
None

Additional Questions:
1. Originality: Does the paper contain new and significant information adequate to justify publication?: It is a delight to see more papers contributing to Research in Ent Ed. I particularly like the application of the concept of nudging. I don't believe this to be an original concept applied to Ent Ed, but it is a unique contribution to Research in Ent Ed so valuable.

The rationale of the paper in the introduction could be tighter and have more clarity. There is a lack of empirical evidence to drive the papers existence.

By following reviewer 1's suggestion to include more papers, we have strengthened the argument for our contribution and engaged more deeply with the existing empirical evidence.

2. Relationship to Literature: Does the paper demonstrate an adequate understanding of the relevant literature in the field and cite an appropriate range of literature sources? Is any significant work ignored? There is an uncomfortable feeling of a lack of Ent Ed literature in the first 6 pages. There are flashes of it here and there, but there is no evidence of this literature being understood and applied to this study. I'm sure this literature is understood, yet its lack of visibility sits uneasy.

We purposefully tried to focus on what this paper was trying to achieve rather than reviewing the EE literature. However, it seems that we have failed in establishing a sufficient basis for the paper in doing so. This is also something that Reviewer 1 has picked up on, and we have therefore included reference to the literature on identity development and emotions literature on pgs 1 and 3.

P1: *Changing individual behaviour, as Pittaway and Cope (2007) suggest, is about individuals' identities and understanding how these are shaped through learning. However, there is limited research that focuses on what happens in the classroom and how classroom-based learning environments may influence students' development of an entrepreneurial identity (Ilonen and Heinonen, 2018; Lackeus, 2014;). Wiith a few exceptions (see e.g. Middleton and Donnellon, 2017), much of the research on classroom activities focuses on identity development in relation to new venture creation, not on how to achieve identity development in the classroom setting by emulating entrepreneurial experiences and learning (Middleton, 2013; Donellon et al 2014; Nielsen and Gartner, 2017). Indeed, Middleton and Donellon (2017) call for research that document the effectiveness of such approaches.*

P3: *In an EE context, Shepherd (2004; 275) suggests entrepreneurial pedagogy should be directed to elicit emotions that reflect the life-world experiences of entrepreneurs, for example the emotions that result from risk taking and failure. More recent research has subsequently highlighted the role of emotion in EE (Lackeus, 2014; Ilonen and Heinonen, 2018). The latter stress that there has been little research addressing affect or emotion and that the number of studies attempting to address attitudinal changes is limited. However, Jones and Underwood (2017:660) outline the 'emotional ecology of the classroom' and argue that, despite great strides in linking cognitive and behavioural development to emotional processing, 'this has not translated into widespread development and/or adoption of new pedagogies (in entrepreneurship education)'.*

The statement (PG1/ln22) 'Indeed, the tyranny...' is presented with no supporting evidence and I would question the validity of this statement. Whilst it is certainly present as a concept, it is one of many and I don't believe it solely drives mainstream Ent Ed.

We have removed the offending sentence.

If you state there is 'scant research' (PG1/ln37) then make reference to what does exist.

On page 1 we have changed the sentence to: **P1:** *However, there is limited research that focuses on what happens in the classroom and how classroom-based learning environments may influence students' development of an entrepreneurial identity, indeed, Ilonen and Heinonen (2018:392) argue that there has been little research 'addressing the effect and emotion, particularly the related learning outcomes', whilst Lackeus (2014:374) suggests that few articles 'empirically account for when, how and why … learning environments contribute to the development of entrepreneurial competencies'. With a few exceptions (see e.g. Middleton and Donnellon, 2017), much of the research on classroom activities focuses on identity development in relation to new venture creation, not on how to achieve identity development in the classroom setting by emulating entrepreneurial experiences and learning (Middleton, 2013; Donnellon et al 2014; Nielsen and Gartner, 2017). Indeed, Middleton and Donnellon (2017) call for research that documents the effectiveness of such approaches.*

3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts, or other ideas? Has the research or equivalent intellectual work on which the paper is based been well designed? Are the methods employed appropriate? I

t is not clear what role the researchers are taking in the interventions.

*We explain that one of the **researcher's is also the educator**; the other is the ethnographer, and the third was brought in at the analytical stage. **P7:** The data is drawn from a course that was part of two broader MSc programs developed by the professor, who also delivered them. **P9:** The qualitative data collection took place over three years, six courses and 168 hours of classes. One of the authors of this paper, an educational ethnographer, closely followed the course, taught in two different countries and interviewed students of both genders and of different nationalities. **P10:** At the analysis stage, an educational sociologist was invited to join the educator and ethnographer to bring in someone who was not involved in delivery or data collection, offering an unbiased perspective.*

Pg7/ln14 I'm intrigued to know the set-up of a room that supports students 'tuning in' in to emotions. This feels subjective but is presented quite objectively.

*We have included a reference to a paper that discusses the importance of scaffolding in entrepreneurship education and added to the sentence: **P7:** the classrooms were set up to move students out of their comfort zone and to 'tune in' to their emotions by removing the distance between people, for example removing the tables and standing or sitting in a circle, so they can see each and talk to each other rather than just the educator (Neergaard & Christensen, 2017).*

There seems to me to be a contradiction in the use of participant observation in this study. Pg9/ln17 states 'an educational ethnographer closely observed the same course' and yet it goes on to state (Pg9/ln34) 'we only collected observational data for the first cohort'. Whilst Table One makes it clearer what role the researchers took regarding data collection in this study, I'm concerned with the lack of participant observation given the ethnographic approach.

We have clarified the role of observation and interview (pgs 9-10). One of the authors is also the educator in the classroom. Ethnography is not only about observation it is part, but not the only thing the ethnographer does. Observing the first cohort in each country combines to 56 hours of observation, cf table 1, that is one third of the total hours.
The presence of the ethnographer during the teaching resulted in observations being made about what was going on in the classroom and all interventions were identical for each of the 6 years. Thus, the observations were primarily meant to inform the interviews with the students about their experiences in order to assist the educator in improving the lectures. These are not used as data in the research. This should now be clearer in the text and evident in the tables.

4. Results: Are results presented clearly and analysed appropriately? Do the conclusions adequately tie together the other elements of the paper? The results are clear and this is due to the use of dimensions for structure. It is great to hear the voice of the participant within the results.

Thank you very much. We have worked very hard to achieve this.

5. Implications for research, practice and/or society: Does the paper identify clearly any implications for research, practice and/or society? Does the paper bridge the gap between theory and practice? How can the research be used in practice (economic and commercial impact), in teaching, to influence public policy, in research (contributing to the body of knowledge)? What is the impact upon society (influencing public attitudes, affecting quality of life)? Are these implications consistent with the findings and conclusions of the paper? I think there are implications for practice in Ent Ed and indeed, a call for further research into this Ent Ed practice.

Thank you very much.

6. Quality of Communication: Does the paper clearly express its case, measured against the technical language of the field and the expected knowledge of the journal's readership? Has attention been paid to the clarity of expression and readability, such as sentence structure, jargon use, acronyms, etc. Does the title of the paper adequately reflect the key concepts/ideas/topics addressed? This paper is well written and clearly makes a contribution.

Thank you very much.