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Developing entrepreneurial skills and mindset through mini enterprise projects: Is reflection the missing link?

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Abstract
In the study reported on here we explored how learners who participated in mini enterprise projects (MEPs) in business studies at junior secondary schools in Botswana experienced reflection. The MEP is a project-based learning experience involving learning by doing in an environment that closely simulates a real business. In this qualitative study we followed a pragmatist-oriented phenomenological methodology to investigate learners' subjective and intersubjective experiences of MEPs and their reflective thinking and acting. Participants included 13 former business studies learners with experience in mini enterprises, purposively sampled and recruited through snowball sampling. Data were analysed thematically. The results show that reflection is a function of the different phases of the MEP, the lack of systematic reflection built into the MEPs at inception, and, consequently, learners intuitively practise reflection to cope with critical incidents prevalent in the mini enterprise experience.

Keywords: critical incidents; entrepreneurial learning; entrepreneurship; entrepreneurship education; reflection; reflective learning

Introduction
In the 21st century, having entrepreneurship skills and mindset is deemed essential. Governments across the globe, including in Southern Africa, have introduced entrepreneurship education at secondary education level as a way of equipping learners with competencies and attitudes that would prepare them to meaningfully contribute to their national economies (Du Toit & Gaotlhobogwe, 2018; Du Toit & Kempen, 2020; Steenekamp, Van der Merwe & Athayde, 2011). Identifying the specific competencies to be developed and how such skills are to be developed becomes crucial. In Botswana, mini enterprise projects are widely used as a pedagogical tool to integrate entrepreneurship into business studies at junior secondary school level (Sithole, 2012).

While the use of experience-based approaches to teaching entrepreneurship, such as mini enterprise projects, is not new, impact studies conducted in different parts of the world have largely relied on static approaches which focused on measuring psychological traits and the influence of entrepreneurship programmes on entrepreneurial self-efficacy, attitudes and intentions of learners (Bux, 2016; Elert, Andersson & Wennberg, 2015; Steenekamp et al., 2011). Unfortunately, these approaches neglected the learning process because they did not help us identify the aspects of the entrepreneurship programmes that worked, how they worked, and the reasons why they supposedly worked effectively (Politis, 2005).

These limitations have led to the emergence of process-oriented approaches to researching and teaching entrepreneurship. Politis (2005) argues that investigating the process of developing entrepreneurship knowledge and competencies may be more rewarding than investigating the causal relationship between past entrepreneurship experience and entrepreneurial attitudes and intentions. Entrepreneurial learning, used to understand how critical events in entrepreneurial programmes, such as mini enterprise projects (MEPs), mediate the development of entrepreneurial competencies and mind-set, emerged from this shift (Lackéus & Sävetun, 2019; Pittaway, Gazzard, Shore & Williamson, 2015; Pittaway & Thorpe, 2012).

Entrepreneurial learning foregrounds "the role of practice as an epistemological means of learning, and how practice can contribute to entrepreneurial development" (Higgins, Smith & Mirza, 2013:139). Characteristically, it encourages the use of experiential entrepreneurial activities and programmes that mirror real-world entrepreneurship by involving social networks, learning by doing, ambiguity and uncertainty, exposure to risk, and critical incidents that mandate reflection for meaningful learning from experience (Cope, 2005; Pittaway & Cope, 2007; Pittaway, Rodriguez-Falcon, Aiyegbayo & King, 2011). For this reason, critical reflection is recognised as an essential skill for educating entrepreneurs who will become reflective practitioners and lifelong learners (Higgins et al., 2013) who are able to draw lessons from their experiences and apply them to similar situations in the future.

Even though the potential value of critical reflection in learning from entrepreneurial activities is recognised, it seems to have eluded research on entrepreneurship education (Hägg & Kurczewska, 2016), particularly at the lower education level (Hunter Lindqvist, 2017; Pepin, 2018). This is despite widespread reference to both Kolb and Dewey's experience-based education in the entrepreneurship education literature, which emphasises reflection (Hägg & Kurczewska, 2021; Motta & Galina, 2023; Pepin, 2012, 2018). This gap is in contrast to university level, where studies focus on reflection by entrepreneurship learners (Hägg, 2017;

Kheng, 2017; Kheng & Sethela, 2015; Lundmark, Tayar, Qin & Bilsland, 2019; Wraae, Tigerstedt & Walmsley, 2021) and practising entrepreneurs (Cope, 2003; Cope & Watts, 2000).

A possible explanation for the paucity of studies on reflective learning at secondary education level is that entrepreneurship education and research at this level are relatively new compared to those in institutions of higher learning (Fayolle, 2013; Kakouris, 2015; Maritz & Brown, 2013). This possibly also explains the limited research on reflective learning from experience-based entrepreneurial activities, even though mini enterprises are widely used for pedagogical purposes at this level around the world. Hunter Lindqvist (2017) concludes that even though learners may learn from these activities, they do not seem to engage in reflection. Therefore, it is largely unknown how secondary education learners transform their mini enterprise experiences into knowledge, and whether they indeed engage in reflection.

While this study was conducted in a developing country, its theoretical contribution is far-reaching and extends to any context. Entrepreneurial failure is common in developed and developing nations. As such, the insight from this study on the phenomenon of deep, sustainable learning through deliberate reflection is instructive for successful entrepreneurship learning. A key contribution of this study to the field of entrepreneurial learning is the assertion that structured reflection is needed to harness intuitive reflective coping, critical incidents, and emotions. This argument has universal appeal as it values multiple points of reflection, namely, pre-action reflection (planning stage), dialogic reflection (operation phase), and post-operation reflection (Pepin, 2018) – reflective inflexions that move entrepreneurial learning beyond surface-level superficiality.

To address the knowledge gap regarding reflection in entrepreneurial learning among lower secondary school learners, we aimed to explore how junior secondary school learners of business studies in Botswana who participated in the MEPs experienced critical reflection. The objectives were to determine learners' experiences of reflection in MEPs; factors that influenced their reflective practices; how they engaged in reflection; and how much they reflected on lessons learned from operating their MEPs. The research questions deriving from this aim and objective were the following:

1) What are business studies learners' experiences of reflection in the MEPs?
2) What factors influence learners' engagement in reflection when operating MEPs?
3) How do business studies learners engage in critical reflection in the MEPs?
4) To what extent do learners reflect on lessons learned from their mini enterprise experience?

Literature Review

Reflection is synonymous with reflective learning and refers to learning that arises from the reflective process (Moon, 2006). According to Boud, Keogh and Walker (2013), reflection is a process that supervenes an experience, involving taking a step back to recreate, analyse, and evaluate that experience. Hommel, Fürstenau and Mulder's (2023:3) conceptualisation of reflection gives a more holistic, rather than a mentalistic and individualistic perspective:

> … a conscious and systematic process of elaborating meaning and deepening understanding of a specific content that interrelates cognitive, emotional, and motivational elements; is based on work actions, experiences, and knowledge; takes place in a social context and contributes to individuals' professional development.

Although this definition leans more towards professional reflective practice, it demonstrates the holistic nature of reflection by bringing together issues of cognition, emotion, conation, and social contexts. These issues may be applicable to entrepreneurial learning in collaborative, authentic, action-oriented, and socially embedded project-based pedagogical approaches, as epitomised by the MEPs. The definition builds on calls for studying reflection in entrepreneurship education (Hägg & Kurczewska, 2016; Higgins et al., 2013; Kassean, Vanevenhoven, Liguori & Winkel, 2015) – especially as a holistic and integrated process in which the focus is on the body and mind, as well as affections as sources of experiential knowledge (Jordi, 2011). It also embodies a shift from an individualistic perspective of reflection to a perspective of social relatedness in which reflection is regarded as a collaborative and cooperative process (Hommel et al., 2023).

While entrepreneurship is encouraged, especially through experiential learning (Dhliwayo, 2008; Du Toit & Gaotlhobogwe, 2018; Mayombe, 2024), without reflection, such efforts risk compromising optimal learning and its transfer (Le Roux & Steyn, 2007). In this sense, reflection is a means to develop new insight, perspectives, attitudes, and knowledge from experience, either as an individual or through social negotiation and interaction (Boud et al., 2013; Hommel et al., 2023; Le Roux & Steyn, 2007). Although reflection is commonly carried out through a reflective writing process where acting agents write down their experiences and evaluate them (in reflective logs, journals, and diaries, and the like) for knowledge and insight (Hägg, 2021; Moon, 2013; Yeoh, 2017), it may also be conversational, where reflecting agents may use debriefs and meetings to ruminate on experience (Boud et al., 2013; Järvi, 2015).

From a process-oriented perspective, entrepreneurship involves a series of transformational interconnected events in a sophisticated network of relational configurations involving embodied cognition, human agency, social interaction, material things, and temporality situated in an ambiguous, uncertain, risk-laden, and fluid business environment (Hjorth, Holt & Steyaert, 2015; Kyrö, Seikkula-Leino & Mylläri, 2011; Selden & Fletcher, 2020). Reflection during the implementation of an entrepreneurial project is triggered by these different episodic critical incidents, which are either discontinuous events or opportunities for action that keep arising over time during this phase. Reflection occurs because each of the critical events creates opportunities or conditions ripe for new learning by rendering "learners' biographical repertoire insufficient to cope automatically with the critical incident, thus disturbing learners' unthinking harmony with their world, causing tension and uneasiness" (Jarvis, 2012:6). Consequently, through reflective thinking and acting, learners need to deal with these critical incidents and adjust their habits of action and thinking, in the process developing new knowledge that can be applied to future situations.

Pepin (2012, 2018) developed a model to explain how learning occurs in learner-led entrepreneurial projects, grounded in Dewey's philosophy of experience and the inquiry process. The following steps are followed in this process: (1) learners recognise a problem; (2) they define the problem by examining its nature and the conditions under which it occurs; (3) they develop possible solutions; (4) they brainstorm possible implications and effects of implementing the suggested solutions; and (5) they put the solution to the test (Miettinen, 2000; Morgan, 2014).

Building on this understanding, Pepin (2018) identifies three different forms of reflection at different phases of an entrepreneurial project. Firstly, pre-action or anticipatory reflection in the planning phase involves setting out the goals, objectives, purposes, and targeted outcomes of the project (Pepin, 2018). Secondly, the reflexive conversation follows, involving the use of reflective thinking and acting modelled after the inquiry process to solve emerging problems or to seize emerging opportunities for entrepreneurial action during the operation stage of the project. Lastly, post-action reflection involves taking a rear view of the overall experience to evaluate and synthesise lessons learned as well as the actions or adjustments to be made towards the targeted ends and similar situations in the future. Although not exhaustive, this model seems appropriate to serve as a guide for researching and explaining the process of reflective learning in an MEP.

Methodology

In this qualitative study we employed a pragmatism-oriented hermeneutic phenomenology (Hägg & Kurczewska, 2021; Kyrö et al., 2011) to investigate experiences of reflective learning through MEPs by former business studies learners from three junior secondary schools in Gaborone, Botswana. The study was anchored in Heidegger and Merleau-Ponty's hermeneutic phenomenology and in Dewey's philosophical pragmatism. Hermeneutic phenomenology was helpful in generating and analysing data on learners' subjective and intersubjective lived experiences of reflection in the MEPs within the educational contexts in which they occurred. Pragmatism's process world ontological view of entrepreneurship (Hjorth et al., 2015; Selden & Fletcher, 2020) helped to investigate the interaction and adaptive adjustments between learners and their environment through reflective thinking and action as they grappled with different critical incidents in the MEPs to build their entrepreneurial knowledge (Biesta & Burbules, 2003; Hägg & Kurczewska, 2016, 2021; Morgan, 2014). This research design offered a rich, detailed description of the real-life settings and contextual conditions in which entrepreneurial learners' reflective practices occurred as participants in the MEP, using in-depth data collection methods (Bloomberg & Volpe, 2012; Roestenburg, Strydom & Fouché, 2021).

Data Generation

In line with the tenets of hermeneutic phenomenology, data were collected through individual interviews. We used semi-structured to unstructured questions to allow participants to, with as few disruptions as possible, freely give detailed narratives of the experiences and incidents that they found impactful and memorable (Dibley, Dickerson, Duffy & Vandermause, 2020; Moules, Field, McCaffrey & Laing, 2014; Moustakas, 1994; Peoples, 2021).

Study Participants and Sampling Procedures

The participants in the study were 13 former business studies learners (four female and nine male) aged between 19 and 21 years, who had participated in MEPs during their junior secondary school education in the last 5 years. This was done because data were generated at the height of the coronavirus disease (COVID-19) pandemic, when schools could not operate MEPs. Consequently, learners who participated in these projects before the pandemic became an alternative, viable source of data. The participants comprised students in their first and second years at different tertiary institutions in Botswana. Participants were recruited through purposive and snowball

sampling. Purposive sampling enabled the selection of participants with relevant MEP experience and a willingness to be interviewed about it. Snowball sampling was used because participants referred us to their former classmates for potential engagement in the study.

Analysis

The raw data were transcribed and cleaned to correct errors. Some participants used Setswana, which was translated into English. The findings were analysed thematically using Creswell and Poth's (2016) data analysis spiral, which involves different levels of analysis, from initial coding to theme development and interpretation. This process was done while remaining true to the tenets of the phenomenological data analytic process involving "commitment to an abiding concern, oriented stance towards the question, investigating the experience as it is lived, describing the phenomenon through writing and rewriting, and consideration of parts and whole" (Kafle, 2011:191). It is also worth noting that, during data analysis, student participants were assigned arbitrary three-letter codes (e.g. AMS, BLS, MKS, MSS, PSS, PTS, OMS, SGS, JMS, RGS, and TMS) as pseudonyms to protect their identities and ensure anonymity in reporting the findings.

Findings

Four broad themes emerged from the data analysis process on how learners experienced reflective learning in MEPs. These themes were: reflection as a function of the MEP phase; factors influencing reflection; the reflection process; and outcomes of the reflection. These themes and their sub-themes are discussed below.

Reflection as a Function of the MEP Phases

The findings reveal that learners engaged in reflection in different ways, depending on the phase of the MEP they were in.

Pre-action reflection

In preparation for start-up, learners were found to be more likely to engage in pre-action reflection through strengths, weaknesses, opportunities and threats (SWOT) analyses of their business ideas.

> *SWOT analysis, … strengths, weaknesses, opportunities and threats … helped us to plan ahead well in time to move on the weaknesses … and the threats that our business might face.* […] *everyone voiced out their opinion on whether what he or she suggested was a threat, weakness, opportunity, or strength*. (PTS)

The extract above shows that a SWOT analysis was used "to plan ahead", demonstrating how this process informed decisions on the choice of products and services to sell before implementing the project. It also shows that learners identified the strengths, weaknesses, opportunities and threats of their business idea to ensure viability and pre-emptively anticipate possible inherent/internal weaknesses and external threats that their "business[es] might face." By implication, this enabled them to act proactively to ensure the survival of the enterprise after its launch.

Although not all learners reported using a SWOT analysis, most engaged in some analysis and evaluation of internal and external factors, following analysis of market research data, to decide on business ideas and implementation of their plans.

> *We actually conducted research using learners. We gave them questionnaires where they were asked questions about their preferences* (OMS).
>
> *We didn't only look at the needs of the learners, but we also considered our financial ability … We calculated production costs … of producing these fresh chips and the profit that we were going to gain from this* (MSS).
>
> *We decided on selling hot dogs because of product* [raw material] *availability, market demand and competition from other classes* (JMS).

Although the participants' responses above are not exhaustive of the findings, they reveal that the internal factors identified included their "financial ability", possible profit gains over "production costs", the amount of time at their disposal, and the effort required. Externally, they evaluated the availability of raw materials, potential suppliers, competition, market demands (customer preferences), and product affordability to refine their business ideas.

Conversational reflection in the operation phase

On the operation phase of the MEP, learners reported engaging in conversational reflective thinking and acting primarily through business meetings.

> *After school, we had to look at what we did during the day, especially in terms of money. And where is the money going? Is it going to be kept? Or is it going to buy stock that day?* (OMS).
>
> *Decisions were taken at various sittings … We would come together as a collective and come up with ideas on how we can resolve these problems* (PTS).

The idea of looking back at what was done "during the day" conveys the notion of reflecting on experiences. The "various sittings" indicate meetings as a platform for reflection, while the term "collective" and the phrase "come up with ideas" indicate the conversational nature of the reflection that the learners engaged in during the operational phase of the project.

The conversational nature of reflective thinking and acting is further evident from the different purposes that the meetings served. These included evaluating the business's performance (in terms of revenue), addressing operational issues, such as deciding how to allocate funds, and resolving problems. This process involved

evaluating "*records of what was happening*" (PTS) and engaging in peer evaluation characterised by members "*correcting each other when mistakes*" (SGS) were observed among team members.

Post-operation reflection

The findings reveal that reflection in the first two phases is not a requirement in the sense of a deliberate structure or evidence that is added to learners' portfolios. However, at the end of the report, learners engaged in post-operation reflection.

> *The form of reflective writing, I would say, would have been our project report* (JMS).
>
> *In the report, we had to include the details of whom you worked with, what you did, and how much you sold in preparation for submitting the portfolio for grading at BEC* [Botswana Examinations Council] (RGS).

As shown above, learners engaged in descriptive, non-critical reflective writing in the post-operation report. They were required to simply describe their overall experiences, the roles they played in the project, and who they worked with. Noting whom they worked with was intended to help learners appreciate how different functional roles related to others in the enterprise. The wisdom of this seems to be to ensure that learners had a holistic appreciation of the enterprise, not just of their isolated role or position. Although not a requirement, others went further to discuss "*how products performed* […] *challenges experienced* [and] *the opportunities* […] *encountered along the way*" (JMS). Thus, the report was an overall reflection on their experience in the MEP and was submitted as the fourth and final chapter of their portfolio.

Factors Influencing Reflection

We also investigated the factors that influenced learners' reflective practices while working on the projects. The findings reveal that deliberate, structured critical reflection was not built into the MEP, except for the report, which was conducted at the end of the project. The question then was, how did learners come to engage in reflection? The extracts below provide insight into some learners' attitudes towards reflection, particularly at the beginning of the project.

> *We never sat down and reflected on the failures or the achievements because* […] *people were* […] *just wanted to get done with the project* (MKS).
>
> *The only time we ever would sit for a meeting was during the lesson when our teacher would ask us how the business was doing* (BLS).

MKS notes that initially, the emphasis was on completing the project rather than reflective learning. BLS indicated that, for his team, the teacher's intervention forced them to hold evaluative business meetings during lessons. Before this, they, like MKS' team, were not invested in collectively reflecting on "*how the business was doing*." Instead, they "*only cared about pushing the products*" (BLS). Interestingly, these meetings unearthed glaring disparities between what they had planned and business performance, helping them "*come up with more informed decisions*" (BLS). Due to the avalanche of problems, one participant acknowledged that "[w]*e had to sit ourselves down*" (MKS) to solve them. In this sense, reflection emerged as an intuitive coping mechanism for dealing with critical incidents. The section below further demonstrates that critical incidents were the primary factors influencing reflection in the MEP.

Critical incidents as triggers of reflection

Crisis events and entrepreneurial opportunities were identified as the primary triggers of reflection. Crisis events are presented first, followed by entrepreneurial opportunities.

> *We stock more; they buy less; we stock less; they want more. So, it was challenging because if we didn't make those sales, we would have huge losses. … We would sit down and agree to go around giving people on credit or lower prices so that we get rid of the stock. … Some paid, some did not, and some made those payments late.* (AMS)

The excerpt above demonstrates that the learners had experienced different discontinuous or crisis events. These included challenges with determining optimal stock levels and low sales, which posed a risk of "*huge losses*", forcing participants to sell on "*credit or lower prices*" just to "*get rid of the stock*" (AMS). Evidently, these solutions spiralled into new problems, as some customers failed to pay or made late payments. Incidents of theft were rife, as one student reported that people "*were stealing*" (MKS) their stock. There were also incidents of suppliers failing to deliver stock on time. One participant reported that their suppliers often delivered "*hotdog rolls late*" and without them, "*business could not commence*" (JMS). Another reported that when suppliers failed to deliver, they would put their plan B into motion, which entailed rushing "*to another store to buy the cream doughnuts, and sell them during lunch hour*" (PTS). Conflict among members was another commonly reported critical incident resulting from non-cooperation, like when members didn't "*want to sell*" *or* "*to help with just anything*" (PSS). Sometimes they fought about finances, having sold products on credit to people they didn't know, and "*wouldn't even produce the list of the names that they sold the pies to*" (PSS). A common thread is that these different crisis events triggered participants to either engage in reflection on action, like when they sat down to look at what happened and agreed on solutions, or reflection in action when they immediately implemented a contingency plan.

The findings reveal that reflection was also triggered by entrepreneurial opportunities, such as

talent shows and other special events held at the school from time to time. These events moved participants to engage in reflection for action. The interview extract below illustrates how a talent show could trigger reflective thinking and acting.

> *There were certain times when we had* [...] *something like talent shows or beauty pageants. So, we braced ourselves and made preparations because everyone was going to be there. We had a meeting at 7 am at school about what was going to be done and how it would be done by 12 pm.* (SGS)

As shown above, entrepreneurial opportunities also generated excitement, prompting learners to attend planning meetings to make the most of emerging opportunities. The anticipation that "everyone was going to be there" implied increased sales. This spurred learners on to proactively plan for anticipated demand and potential changes within the business to meet, if not exceed, customer expectations.

Emotions as triggers of reflection

The findings further reveal that these incidents often had an emotional component (positive or negative), prompting reflection and action. Opportunities were found to result mostly in positive emotions. For example, one participant reported that success left them feeling "*happy*", "*overjoyed*", and with "*the feeling of a person who has just won a lottery*" (SGS), and beaming with smiles. However, crisis events seemed more likely to elicit fear, anger, surprise, disillusionment, and disappointment, which would trigger collective reflective thinking and action. The excerpt below illustrates how critical incidents as triggers of the inquiry process were often emotionally laden, and indicates how one team reacted and responded to incidents of theft of their products:

> [W]*e held weekly meetings, even though they were mostly fights* (PSS).
>
> *People were surprised … So, if something like that happened again, they knew it would cause us a huge loss. Some were disappointed; some just wanted to make sure they did not get frustrated* [again] *that day. So, accountability was necessary … to avoid errors and ensure things ran smoothly. We had to make sure that specific measures were taken.* (RGS)

From the above excerpt, the prevalence of fights during meetings intended to address problems indicates that heated emotions characterised the mini entrepreneurial experience. The second excerpt illustrates the different emotions that learners experienced during meetings. These included emotions of surprise, disappointment, frustration, and even a veiled fear of potential loss of profits meant to be shared at the end of business. As part of the reflective process, emotions seem to be evaluative of the critical incidents, judging them either positively or negatively *ab initio.* For example, the instantaneous feelings and emotions of surprise and disappointment following an incident implied that the incident was, at face value, quickly assessed and concluded as negative even before one had time to engage in a more deliberate and elaborate cognitive evaluation. The benefit of this evaluative nature of emotions is that they may prompt immediate action, where one does not have the luxury of time to process things slowly and intellectually. In addition, emotions also triggered reflective thinking and acting, as learners worked to ensure they did "not get frustrated [again] from that day." In other words, learners reflected and acted to avoid experiencing certain undesirable emotions again. This is evident from the specific decisions taken to implement internal accountability measures and safety controls.

The Reflection Process

How learners engaged in reflection was also of interest. The findings reveal three main ways in which learners engaged in reflection: the proactive or preventive reflective process, the diagnostic reflective process, and the problem or solution-driven reflective process.

Proactive or preventive reflection

As shown in the extract below, learners tried to anticipate potential critical incidents and opportunities so they could proactively prepare for them: "*SWOT analysis … helped us to plan ahead well in time to move on and address the weaknesses, and the threats that our business might face*" (PTS).

As noted above, this reflective process helped learners "to plan ahead well in time" to pre-emptively protect the enterprise against possible discontinuous events. In this way, they protected the business from losses. A proactive, reflective process is also involved in entrepreneurial opportunities such as talent shows, beauty pageants, sporting competitions and others. On such occasions, learners "*made preparations*" (SGS) through reflection for action and execution, which enabled them to optimally exploit emerging opportunities. Overall, proactive reflection seemed very useful in addressing problems that learners "*encountered throughout the project*" (PTS) "*because* [m]*ost of them*" were "*already jotted … down*" (PTS), thus, making it easy to quickly respond to them.

The diagnostic reflection process

The diagnostic reflection process was demonstrated by learners comparing their practices to their plans and production outputs, or sales revenue to the targets they set before trading. In this process, business records were used to compare actual business performance with forecasts.

> *Well, we referred to the business plan every Friday* […] *we checked whether what we wrote in the business plan correlated to what we were practising* (SGS).

> *We used live data of what was happening on the ground.* […] *The data showed that the business did not perform well because the predictions were high, yet the turnout was low* (BLS).

This investigative process did not necessarily have to be led by problems that had occurred or by disparities observed; it was the process that helped learners know whether they were on track. For example, BLS noted that by comparing their high predictions with on-the-ground data, they found that their business was performing poorly. As a result, they "*had a team discussion on what to do*" and "*decided to go with loss leaders*" by doing "*promotional sales*" and introducing a new product line (BLS). Therefore, this process resulted not only in changes to the business activities but also to the revision of targets in the business plan, upon realising that they were too ambitious and unrealistic.

Problem-driven reflection

Problem-driven reflection often follows a crisis event. However, each team approached it differently in terms of structure and alignment with the inquiry process. The structure ranged from a more systematic, structured reflective process to a totally unstructured one. On the question of whether they followed any criteria for reflection, some participants stated that they "*had no criteria*" (TMS) or "*wouldn't say that there was really a systematic approach to that*" (PTS). However, some described a methodical process with varying degrees of structure. JMS' response provides more detail regarding the structure of their problem-driven reflection.

> *Our supplier was bringing in our stock extremely late. That was a problem…* [because they were] *our main income source, and we were not reaching what we were striving for. And then the possible solutions were: 1) we could have someone pick that up, or 2) we could change our supplier. So, we tried having someone pick it up, but they did not prepare our hot dog rolls at the agreed time. So, this meant that the solution* […] *was no longer on the table. The best possible solution was to change suppliers. Then I approached Spar* […]. We gave them a 2-day trial run, *and they performed beautifully.* (JMS)

As shown in the interview excerpt above, learners first recognised and defined a problematic situation as the late delivery of stock. Secondly, they also had some awareness of the impact of the problem on their enterprise, the disruption of production targets, and their source of income. Thirdly, they thought of possible solutions to the problem, coming up with two potential solutions. In the fourth place, they implemented the first solution. When it didn't work, they went back to the drawing board, considered the second solution, and ran a trial. When everything worked, it marked the end of the reflective thinking and acting process. Although other participants followed a similar process, there was less detail about the steps they took. The variation in structure may stem from a lack of guidelines on how learners should reflect when they faced episodic problematic situations; instead, they relied on their own intuition to cope with critical incidents.

Outcomes of the Mini Enterprise Experience

We also investigated whether learners drew lessons from the MEPs as they reflected on their experiences. The findings reveal that as a collective, they did not deliberately reflect on lessons learned from their experiences. One student reacted as follows, "*As a team, no, we didn't!*" (MKS). Participants argued that the project was hectic and that they did not have the luxury of time to engage in such a process. To illustrate, PSS argued that they drew lessons "*as different individuals* [...] *because we didn't have time*" (PSS) to do it as a collective. The interview excerpts below reveal some of the lessons learned from reflecting on the MEPs.

> *So,* [what] *this taught me was … I had to be a team player,* […] *I had to brush up on my conflict resolution skills, and I had to brush up on my time management skills* (JMS).
>
> *This taught me that every business encounters challenges, every business encounters threats, but as an entrepreneur you should* […] *think outside the box;* […] *make decisions and plan ahead … to prepare … for threats that the business might face in the future*. (PTS)

As shown above, participants reported learning both non-cognitive and cognitive skills, such as conflict resolution, decision-making, time management, confidence, planning, teamwork, problem-solving, and thinking outside the box. Some learners reported that, although they did not consciously and deliberately draw lessons from the experiences, when faced with a related project at a later date, they avoided the mistakes that they had made during the MEP. This suggests that, even though reflection was neither structured nor properly integrated into the MEPs, learners did learn some lessons, albeit preconsciously and serendipitously.

Discussion

The findings of this study confirm the value of experience-based entrepreneurship programmes as a pedagogical vehicle, as they are a miniature version of real-world entrepreneurship practice (Dhliwayo, 2008; Le Roux & Steyn, 2007; Mayombe, 2024; Pittaway & Cope, 2007). The theme of reflection as a function of the project phase agrees with Pepin's (2012, 2018) findings about reflection having different purposes at the planning stage, the implementation stage, and the end of the entrepreneurial activity.

Firstly, in the planning phase, some learners used a SWOT analysis as a pre-action reflection to

evaluate business ideas and to take precautionary measures to ensure that the enterprise thrived. Secondly, the findings also confirm Pepin's (2012, 2018) notion that reflection in the implementation phase is a participatory and conversational process of continuous adjustment of the plan of action in response to episodic crisis events and entrepreneurial opportunities. Dewey's (1958:15) reflective process is mostly problem-driven, as he famously said: "[t]he nature of the problem fixes the end of thought, and the end controls the process of thinking." This thinking has attracted criticism of Dewey's philosophy of thinking, because it means that situations not deemed to be problematic cannot be reflected upon (Hébert, 2015). Furthermore, the findings reveal that reflection does not always follow a critical incident or a problem. Some learners engaged in different forms of pre-emptive or diagnostic reflection, comparing their planned projections with actual outputs even before they had the inkling that something might be wrong in their enterprises. This process, as a reflective act, uncovered undetected problems and discrepancies that needed brainstorming solutions and actions to steer the business towards targeted ends.

Lastly, at the end of the project, learners were required to engage in reflective writing about their overall experience on the project. This reflective writing is technically more of a report and would constitute the last chapter of their portfolio. Unlike the collective reflection in the planning and implementation phases, the report was an individual reflective writing task, primarily descriptive in nature. As a form of reflective writing, and if applied appropriately, the reflective writing should engage learners' critical reflection, allowing them to ruminate on the challenges faced and how they solved them, the friction between theory and practice, and how they reconciled them, misconceptions clarified by experience, lessons learned and feedback on the learning processes (Yeoh, 2017). In this way, it would foster deeper, more meaningful learning. Some participants reported including some of these in their reports, but they were going beyond what the examiners expected. The examiners were interested in a brief description (half a page) of the learners' roles and responsibilities, along with documented evidence of their involvement. Therefore, we regard this as a missed opportunity for reflective learning, especially since reflection was not explicitly required of learners during the operational phase of the MEP.

Critical events revealed that the MEP closely resembled real business and exhibited the attributes of process entrepreneurship (Le Roux & Steyn, 2007; Pittaway et al., 2015). It confirms the conformity of the mini enterprise with a process ontology and epistemology, characterised by risks, uncertainties, mishaps, and interconnected events that require embodied cognition and action, emotions, and collective problem-solving to achieve intended ends (Hjorth et al., 2015; Selden & Fletcher, 2020). Due to the different critical incidents they faced, most learners intuitively engaged in reflective thinking and acting as a coping mechanism against emerging problems and opportunities. This phenomenon, which we called intuitive reflective coping, was also observed even among learners who were initially not predisposed to engage in reflection. This finding is significant, especially since reflection was not even required of them during the operation phase of the project. This corroborates the value and need for teachers to encourage learners and provide opportunities for collective reflection in the classroom (Coulson & Harvey, 2013; Järvi, 2015), especially for adolescent learners who may be oblivious to its value. Furthermore, the study confirms that critical incidents trigger reflection but are often accompanied by emotional experiences (Pittaway & Cope, 2007; Pittaway & Thorpe, 2012). As co-triggers of reflection, the combination of intentionality, evaluation, and the care structure of emotions and feelings related to different critical incidents evoked collective reflection and action. Through these features, learners' interest and attention were drawn to the critical incidents, prompting them to marshal emotional, cognitive, physical, and material resources to address the situations they faced. This finding confirms the value of epistemic emotions for reflection and, more generally, entrepreneurial learning (Brady, 2013; Cope, 2003; Kyrö et al., 2011).

Furthermore, critical incidents provide opportunities for entrepreneurial learning, especially when reflected on (Cope, 2003; Hägg & Kurczewska, 2021; Motta & Galina, 2023; Pittaway & Thorpe, 2012). However, the omission of designing systematic reflection into the MEPs to distil and draw lessons from critical incidents for entrepreneurial learning was a colossal oversight on the part of curriculum planners. This led to reflection being done haphazardly, with varying depth and quality, as a means of intuitively coping with critical incidents. A more worthwhile approach would have been to ensure that systematic critical reflection was planned for and teachers scaffolded it to help learners learn from the critical incidents and also developed as reflective entrepreneurs. This is especially important because although some learners may be mature enough to reflect independently, this is not sufficient, as many learners may not be inclined to engage in reflection voluntarily (Neck & Greene, 2011). Even at university level, entrepreneurship students also find it difficult to engage in high-quality reflection, even when the structure is provided for reflection to take place (Yeoh, 2017).

Therefore, one could assume that the situation is far worse among secondary school learners, who are comparatively less mature, suggesting a need for structure and support through scaffolded reflection. The unfortunate result of not including reflection as part of the project is that many learners were forced by circumstances to engage in reflection, or did so when asked to do so by teachers. Each team thus employed the inquiry process with varying structure and depth, and in doing so, compromising the quality of reflection and the possible resultant learning. This demonstrates the importance of integrating systematic reflection into the project from the design phase at the curriculum development level.

Lastly, although used as a pedagogical vehicle, the MEP lacked structured reflection, retracting from the learning-centred approach that it should have been. As shown, although learners may have developed some knowledge, skills, and attitudes, such learning would be, at best, pre-conscious and serendipitous rather than deliberate. From Merleau-Ponty's (2012:210) perspective, there must be "consciousness in the act of learning" that takes into account both the mind (intellectualism or rationalism) and observed bodily behaviour and experiences (empiricism). He regarded focusing on only one of the two as having serious shortcomings because "[e]mpiricism cannot see that we need to know what we are looking for, otherwise we would not go looking for it and intellectualism fails to see that we need to be ignorant of what we are looking for, or again we would not go looking for it" (Merleau-Ponty, 2012:210). Therefore, to foster the development of entrepreneurial competencies and mindset, it is necessary to realise that experience alone is not enough if learners are not taught how to transform experience into new learning and to become reflective entrepreneurs. Reflective learning and meta-cognitive competencies are lifelong skills in entrepreneurial learning.

In summary, this study highlights the value of a process-oriented approach to teaching entrepreneurship through mini enterprises for educators, researchers, policymakers and other stakeholders worldwide. It emphasises the need to harness intuitive coping, critical incidents and emotion through structured reflection. This argument has universal appeal as it values multiple points of reflection, namely, pre-action reflection (planning stage), dialogic reflection (operation phase), and post-operation reflection – reflective inflexions that move entrepreneurial learning beyond surface-level superficiality. Furthermore, shifting from positivist and static approaches that have dominated entrepreneurship education research at the secondary education level globally (Athayde, 2009; Bux, 2016; Grewe & Brahm, 2020; Peterman & Kennedy, 2003) underscores the need for more alternative methodology to investigate subjective and intersubjective experiences in entrepreneurial learning.

Conclusion

In this study we investigated the reflective experiences of business studies learners in the MEP during their junior secondary school years, revealing four broad emergent themes that captured how learners experienced reflective learning in the MEP. Firstly, reflection occurred differently at different stages of the project, including pre-action reflection during the planning stage, dialogic reflection during the operational phase, and reflective reporting at the culmination of the MEP's operation. This corroborates earlier findings by Pepin (2012, 2018). Secondly, reflection occurred in intuitive and reflective coping through dealing with emerging critical incidents that characterise the dynamic world of entrepreneurship. This means that reflection was not planned or designed into the project from inception, resulting in many learners not following a systematic inquiry process and doing poor reflections. Even though critical incidents and emotional exposure served as triggers of reflection, they were not fully harnessed for their educational potential. Lastly, educational outcomes were not deliberate but mostly pre-conscious, as learners did not reflect on the lessons learned from the project as a collective, even though they engaged in collective and collaborative operations of the business. If learning is supposed to be maximised in the project, attention must be paid to the lack of structured reflection. Helping learners succeed in the mini enterprise includes setting learning goals for what one seeks to learn and deliberately reflecting on lessons learned from operation of the enterprise. Although the mini enterprise has great potential for developing entrepreneurial knowledge, skills and attitudes, reflection must be given much more thought than at present to adopt a more learning-centred approach.

Authors' Contributions

SMM supervised the study, the data collection and analysis and advised on the conceptualisation of the manuscript. GES collected data, did the data analysis and crafted the first draft of the paper. SMM reviewed the draft manuscripts. Both authors reviewed the final manuscript.

Notes

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