

The Merits of Project-Based Learning to Foster Entrepreneurship Education

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ABSTRACT: Entrepreneurship education affords valuable learning to prepare learners for the world of work, including the potential to reduce youth unemployment. South Africa has one of the highest youth unemployment rates globally, making it imperative to develop and expand entrepreneurship education in its school curriculum. The problem that needed investigation, was how such entrepreneurship education needed to be constructed in projects to benefit learners optimally. Literature indicates that education through entrepreneurship — often scaffolded using project-based learning — is preferred above other approaches. Consumer Studies was identified as the only subject in the South African school curriculum that included significant entrepreneurship education, in the form of an entrepreneurship project. The purpose of the current study was therefore to analyze and evaluate that project for its inclusion of project-based learning principles, to determine its strengths and areas for improvement. The intended aim for the research was to develop recommendations to improve the scaffolding of the project to enhance its focus of education through entrepreneurship. The findings of this research contribute to a better understanding of how entrepreneurship education should be scaffolded and implemented into existing subjects. The significance of the research includes that these findings can be used to inform the development of similar projects in other South African school subjects, consequently contributing to expanding effective entrepreneurship education. In the long term, more learners will then be able to benefit from the valuable learning associated with entrepreneurship education, which includes the potential to reduce youth unemployment in this country.

KEYWORDS: entrepreneurship education, principles, project-based learning, school curriculum, youth unemployment

Background and core concepts

Entrepreneurship education contributes valuable learning to the lives of learners, including economic, social and environmental value. Its economic value is linked to learning that will motivate learners to develop their own opportunities for generating income or employment. Although it is not the panacea to all unemployment woes, entrepreneurship education is widely acknowledged as one approach to ameliorate youth unemployment (Du Toit 2020; Moberg 2014; SAVision2020, 2016). Youth unemployment is a growing problem in many countries, but particularly in South Africa, where an all-time high of 74.7% of youth were unemployed in the first quarter of 2021 (Solidariteit 2021). Yet, entrepreneurship education and entrepreneurial activity is low in South Africa which led to officials demanding practical plans to address this incongruity (SAVision2020 2016). For these reasons, the Department of Basic Education (DBE) adopted a directive named the 'Entrepreneurship in Schools' blueprint initiative (DBE, 2016). This directive has the purpose to explore ways to expand entrepreneurship education into all subjects and across all phases of the South African school curriculum before 2030. The current paper reports on one study which aimed to address this directive.

Entrepreneurship education in the South African school curriculum

Recent in-depth analyses of all high school subjects in South African revealed that few subjects' curricula currently include significant entrepreneurship education (Du Toit and Kempen 2018). Of the few subjects that do include substantial and well-structured entrepreneurship education, the subject Consumer Studies emerged as the most prominent contender for developing learners' entrepreneurial knowledge and skills (Du Toit and Kempen 2018). Consumer Studies is unique in that the subject includes considerable entrepreneurship theory content, which is progressively

scaffolded across all three years of the Further Education and Training (FET) Phase, and which is explicitly linked to practical production (DBE 2011; Du Toit 2020). Practical production in Consumer Studies require that learners are guided in developing, making and marketing food, clothing - or soft-furnishing products (DBE 2011). The Consumer Studies curriculum document states the purpose of the practical production in the subject as “small-scale production, entrepreneurship and marketing of quality products” (DBE 2011, 9), clearly indicating that this subject aims to prepare learners for becoming entrepreneurs, should they choose to do so. In addition, the only example in the South African school curriculum of education through entrepreneurship – the preferred and pre-eminent approach to developing effective entrepreneurship education (Moberg 2014) – is found in the Consumer Studies curriculum, specifically in the form of the Grade 12 Entrepreneurship Project (Du Toit and Kempen 2018).

The Consumer Studies entrepreneurship project contributed to formal school-based assessment in Grade 12 – the exit-level of school learners in South Africa (most learners are around 18 years old at that time) until 2020. Learners were required to construct their projects around entrepreneurship education theory content which they learned in Consumer Studies over the previous two years, such as costing calculations, marketing strategies and several factors that impact the selection of a product for development. Depending on the practical production offered at the school, learners had to develop a marketing plan, and then refine and make an actual product (a food -; clothing - or soft-furnishings item) under examination conditions, as part of developing their idea as an entrepreneurial opportunity (DBE 2011). In some schools, learners even packaged and actually sold the products they developed through the project, which mimics real-life entrepreneurship, albeit without the risks (Du Toit, 2021). Teachers reported that most of their learners enjoyed the project and dedicated significant energy and effort to it, which contributed positively to most learners’ marks (Du Toit 2018). Many Consumer Studies teachers appreciated the valuable real-life entrepreneurship learning that the project contributed to the subject, as well as the intricate combination of knowledge and skills developed therein (Du Toit 2018). For example, during an interview with Consumer Studies teachers from South Africa (Du Toit 2018, raw data), one of the participants stated the following:

“I was very happy with the project that we did, because the project was like a business plan and they [learners] have to choose their recipes and how the target market was set, the type of packaging they use and then the advertising of your product. Step by step for the business to run properly and then you [the learners] calculate your financial pricing at the end of the day. So, I thought that project helped them, step by step how to start your business and at the end to sell it, but it [learners’ products] must be sellable at the end ...”

Yet, despite the unique and valuable potential for education through entrepreneurship that is embedded in the Grade 12 Entrepreneurship Project, this value was disregarded when the project was removed from the curriculum as part of the mandatory curriculum adaptations for Consumer Studies (DBE 2017), with effect from 2020. This means that the valuable entrepreneurship education embedded therein will no longer be offered to learners, many of whom need to be taught how they could overcome their probable unemployment fate (Du Toit 2020; Solidariteit 2021).

To explore how the project could be enhanced to promote its re-introduction into the Consumer Studies curriculum, in adherence to the DBE’s directive (2016) to expand entrepreneurship education in South Africa, it was necessary to understand what the project’s strengths had been, but also in which areas it could be improved. To contribute to constructive education, projects (as part of project-based learning) must be planned and executed efficiently, and are usually underpinned by several principles, as discussed in the next section.

Principles underpinning project-based learning

Problem-based learning and project-based learning are often used as interchangeable terms, with no clear delineation between the two strategies (Shinde, 2014:10). Prince and Felder (2006:130)

however point out that projects include broader learning than problem-based learning, and that project-based learning includes the utilisation and application of knowledge to develop a product. A review of the literature revealed that despite many authors mentioning ‘principles’ of project-based learning, few researchers purposefully and succinctly address or unpack these principles. For example, Shinde (2014, 9) reports three broad “common principles of learning” associated with project-based learning, namely cognitive, content and social. Broadly stated, the cognitive principle is problem-based learning, where addressing the problem structures the learning process. Cognitive principles refer to learning content included in the curriculum, and the links between theory and practice; whereas the principle of social learning emphasises group- or teamwork and the benefits associated with the collaboration and good communications skills developed therein (Shinde 2014).

Thomas (2000, 26) explains ‘principles’ for project-based learning as the conditions and strategies “associated with the successful implementation of project work”. The common principles discussed by Shinde (2014) are considered too broad and general to provide detailed insights into such implementation, consequently literature specifically outlining or listing principles for project-based learning was consulted. A comparison of a few pertinent sources is included in Table 1, showing how divergent these ‘principles’ for project-based learning can be. The principles outlined by Bagheri, Ali, Abdullah, and Daud (2013:9) were deemed to be the most forthright (i.e. not needing further explanation) and are presented in the order in which these authors numbered and listed them. To allow comparison of the principles referred to in the other sources, those sources were presented alphabetically (Markham 2011; Thomas 2000; Tolmay 2017). The principles in each of these last three sources were unpacked in Table 1 to correspond to the principle(s) listed by Bagheri et al. (2013) to which they were most closely (if at all) aligned.

From the comparison in Table 1, it is evident that the principles for project-based learning listed by Bagheri et al. (2013) and Tolmay (2017) are most expansive, but also most similar. In several instances different authors used similar terminology in the descriptions of these principles, for example when they refer to collaboration, facilitation, authenticity, assessment and reflection (Table 1). In contrast, the principles that Markham (2011) originally noted were so dissimilar to most of the principles unpacked by the other authors, that additional brief explanations had to be added to clarify the comparison (Table 1).

Table 1. Comparison of Principles for Project-Based Learning by Different Authors

| Bagheri et al. (2013, 19) | Markham (2011, 39) | Thomas (2000, 36) | Tolmay (2017, 28-29) |
|---|--|---|---|
| (1) The organization of learning around real world problems | Identify the challenge | Problems drive students to develop knowledge | Problem-solving is the key driving force |
| | Craft the driving question | | Problem-solving and critical thinking skills developed |
| (2) Student centered instruction; | Enroll and engage students (include student voice and choice in the project) | Autonomous learning, shifting responsibility to the learner | Students take responsibility and ownership for their own learning |
| (3) Collaboration; | Facilitate teams (rather than groups) | | Communication and collaboration skills must be developed |
| (4) Teacher as facilitator; | Plan backwards (the process, product, content, and skills) | Coaching without directing | Facilitating learning (rather than teaching) |

| | | | |
|--|---|---|--|
| (5) Authenticity through using authentic materials and audiences | | Authentic inquiry | Management of the learning environment (dates, time, resources) |
| | | knowledge construction (vs. transmission) | Application of resources and technologies with some guidance |
| | | | Integration and development of knowledge |
| (6) Formative assessment | Build the assessment (criteria to be determined at start) | Conducting performance-based assessment | Assessment in line with learning outcomes, include peer-assessment |
| | | | Evaluation, feedback, and analysis of own achievement |
| (7) Reflection | | | Reflection and metacognition embedded in feedback |
| (8) Production of authentic artifacts | Keep the end in mind (the process and the product) | | Supporting the development of a creative and innovative product |

The detailed guidance for the learner-centred teaching-learning process, as well as the production of authentic products (or artifacts) as the final outcome of project-based learning (Table 1) underscores its suitability as scaffold for education *through* entrepreneurship. Furthermore, both these approaches focus on not only acquiring knowledge, but on applying and integrating learning (Moberg 2014; Prince and Felder 2006, 130).

Problem statement and purpose of the research

When viewed against the background of (i) the valuable and unique contribution that Consumer Studies made toward entrepreneurship education, particularly in education through entrepreneurship in the project; (ii) the need for entrepreneurship education in South Africa to ameliorate youth unemployment; and (iii) the DBE's directive to expand entrepreneurship education to all subjects at all levels in the school curriculum, the removal of the project from the Consumer Studies curriculum is perplexing. The problem was therefore a lack of insight into and appreciation of the significance of the contribution this project had on developing learners' entrepreneurship education. The purpose of this investigation was firstly to explore how the Consumer Studies entrepreneurship project aligns to project-based principles (in theory and in practice) through analysing and benchmarking the project's content to recommendations published in literature for well-structured projects, in order to identify its strengths, as well as areas for improvement. The second purpose was to develop recommendations for improvement of the project to bolster its re-inclusion in Grade 12 Consumer Studies, as well as to possibly expand the project to other school grades in Consumer Studies to enable more learners to benefit from the associated entrepreneurship learning in the project. The methodological and theoretical approaches utilised for the research is discussed next, followed by discussion of the findings. Thereafter conclusions and recommendations, based on the above-mentioned problem and purpose, and informed by the findings of the investigation, are indicated

Research method

The theoretical lens used for this investigation was constructivism, with a focus on how and which knowledge is included as part of the project. A constructivist worldview supports the development of deeper understanding of the complex world in which participants live and work, based on the interpretation of the interactions between concepts and participants (Creswell 2009, 8). From an epistemological point, the social aspects that impacted the learning context, and that contributed to

which learning (knowledge and skills) was included (or excluded), as well as how those aspects impacted on the type of knowledge that is constructed, were of concern.

An exploratory qualitative case study research design was implemented. The case was bound by subject specification (Consumer Studies) and time: the investigation focussed on particulars directly related to the entrepreneurship project in Consumer Studies just before its discontinuation in 2020. Data were collected using curriculum document analysis, literature review, and questionnaires with open-ended questions. The sets of data were analysed using emergent codes, categories and themes, and were then triangulated to determine the reliability of the findings reported.

As a starting point, the content and project-based nature of the Grade 12 entrepreneurship project, in the document used for its dissemination in 2019, was thematically analysed and compared to findings from the literature about preferred content and scaffolding of project-based learning. The formal documents from the Department of Basic Education for the project (DBE 2012; GPDE 2019) were analysed, and where uncertainties emerged, five Consumer Studies educators were approached for clarification, using purposive sampling. The five educators each have more than 20 years experience of teaching Consumer Studies, have been and are involved in several schools, and are considered subject experts by their peers. These experts were therefore invited to complete a questionnaire with open-ended questions on how the project is implemented in practice. The questionnaire responses provided insights into how the “paper” project was implemented in classrooms. The purpose of this phase of the investigation was to determine the strengths of the project as a contributor to or promotor of effective project-based entrepreneurship education, as well as to identify areas for improvement. Subsequently, recommendations were developed based on the findings from the preceding analyses and comparison. These recommendations are aimed at strengthening the project for future (re-) implementation or potential expansion to other school levels, or even other subjects, in line with the DBE’s directive. In addition, the recommendations serve the purpose of promoting the value that this project can contribute to developing Consumer Studies learners’ entrepreneurship education as part of efforts to ameliorate youth unemployment in South Africa.

Findings and Discussion

The analyses and comparison of the “paper” Consumer Studies project to project-based principles is reported and discussed in combination with the findings from the questionnaires regarding the implementation of the same project in practice. Informed by these two sets of findings, recommendations for improving the scaffolding of the project to enhance its focus of education through entrepreneurship, are made.

Alignment of the Consumer Studies project to project-based learning principles

Document analyses indicated that, despite teachers reporting that provinces used different documents to detail and implement the project, almost all the information in the different project documents were the same. These guiding documents include details and descriptions, as well as mark allocations, for all the required sections of the Grade 12 project (GPDE 2019, 15–20). For the current investigation, the Gauteng project document was selected as representative of the project documents and was used for further analyses.

From the literature review, the principles for project-based learning outlined by Tolmay (2017; Table 1) were found to be the most expansive and detailed. Many similarities exist between his suggestions and those of other authors, therefore his set of 12 principles for project-based learning was used as a benchmark (Table 2) for the Grade 12 entrepreneurship project document analysis and comparison. Likewise, the questionnaire responses from the Consumer Studies teachers about the implementation of the project in practice were thematically analysed for similarities and differences to the principles for project-based learning recommended by

Tolmay (2017). An overview of the main findings and examples of evidence in this regard in included in Table 2. In cases where no evidence of the inclusion of a certain principle was found, those cells are shaded in grey, for ease of differentiation.

The shaded cells (Table 2) afford a clear pattern of the project-based learning principles that are not evident in the Consumer Studies entrepreneurship project, and which therefore need strengthening if it is to be re-implemented in future. Similar omissions occurred in both the intended curriculum (“paper” project documents), as well as in the enacted curriculum (questionnaire responses from teachers about project implementation in practice). Three key omissions emerged from the analyses, namely that (1) a problem was not used to guide the project; (2) that individual work was preferred for learners, resulting in several 21st century skills not being developed in the project; and (3) that assessment was one-sided and lacked depth (Table 2).

Table 2. Comparison of the Entrepreneurship Project to Principles for Project-Based Learning

| Principles for project-based learning (Tolmay 2017, 28-29) | Evidence found in the intended (“paper”) project document (GPDE 2019) | Evidence from expert teachers’ responses about the project’s implementation in practice |
|---|---|--|
| 1. Problem-solving is the key driving force | No reference to problem as core focus of the project | No reference to problem as core focus of the project |
| 2. Problem-solving and critical thinking skills developed | No references to problem-solving or critical thinking skills | No references to problem-solving or critical thinking skills |
| 3. Students take responsibility and ownership for their own learning | The learner must “plan / prepare / research on the topic... do the task according the instructions ... [and] compile a given document” (p 15) | No reference to learners having to take responsibility or ownership for own learning |
| 4. Communication and collaboration skills must be developed | No reference to communication or collaboration skills | No reference to communication or collaboration skills |
| 5. Facilitating learning (rather than teaching) | No reference found to teachers facilitating | “Learners must be guided to choose their own products ...” |
| 6. Management of the learning environment (dates, time, resources) | “No template may be used for the project but only where indicated” (p 15) | “...it is time consuming... I [the teacher] am the one who have to look for magazines, those kids don’t have any means of doing that.” |
| 7. Application of resources and technologies with some guidance | “Enough magazines...Every learner should have a textbook to do the project...” (p 15) | “I explain more or less what we are looking for in the magazines ... I spend a lot of time in guiding them.” |
| 8. Integration and development of knowledge | “Please ensure that the ENTREPRENEUR CONTENT is dealt with before the project is being administered” (p 15) | “...but they can apply the knowledge in that project.” |
| 9. Assessment in line with learning outcomes, include peer-assessment | “Develop an implementation plan for your business according to the attached assessment tool” (p 16) | “Learners who have completed the project ... They put theory into practice, that is why they perform better in the exam.” |
| | No peer-assessment indicated | No peer-assessment indicated |
| 10. Evaluation, feedback and analysis of own achievement | No reference to learners’ personal evaluation or feedback on own achievement | No reference to learners’ personal evaluation or feedback on own achievement |

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| 11. Embed reflection and metacognition in feedback | No reference made to reflection, metacognition, or feedback | No reference made to reflection, metacognition, or feedback |
| 12. Support the development of a creative and innovative product | “learners to be given an opportunity to be creative, use own initiative and express own opinions” (p 15) | “Learners ... creatively come up with their business name, slogan and logo for their business.” |

The problem-based requirement for projects were originally included in the teacher training for ‘Projects in Consumer Studies’ when the CAPS curriculum was introduced, stipulating that, as a starting point for projects, teachers must “Identify the topic, and the problem to be solved” (DBE 2012, 6). The problem-based nature of project-based learning serves to guide and structure the learning of content and skills within projects (Bagheri et al. 2013; Thomas 2000; Tolmay 2017) and is therefore vital for inclusion. Although the case study used to introduce the project in the document states that “Your matric farewell is in September. You need to raise money...” (GPDE 2019, 16) as a point of departure, it is not explicitly framed as a problem, which limits the associated benefits of problem-based learning in this project. The lack of developing problem-solving and critical thinking skills in learners which emerged in this study (Table 2) is a direct consequence of not including a key driving problem in the entrepreneurship project.

It further emerged that the development of learners’ communication and collaboration skills, which are both considered important 21st century skills (Moberg 2014; Tolmay 2017), are not explicitly addressed in the entrepreneurship project (Table 2). The Consumer Studies entrepreneurship project endorses individual work (DBE 2011; GPDE 2019), precluding collaboration. Also, except for written work, the project includes no requirement to develop learners’ communication skills – such as verbally presenting their product to potential customers, which is an important principle in project-based learning as well as in entrepreneurship education (Du Toit 2020; Moberg 2014). The lack of collaboration and communication in the project also negatively impacts assessment thereof, as it emerged that no explicit requirement for peer assessment is included in the entrepreneurship project (Table 2). Peer assessment and feedback from peers on processes and products are important scaffolds for learners in project-based learning (Thomas 2000), and contributes to the ideal of learning from mistakes, which is vital in entrepreneurship education (Du Toit 2020; Moberg 2014). Peer assessment and – feedback should therefore be one of the underpinning principles for such learning.

Omitting peer assessment contributes to a one-sided approach to, as well as a lack of depth in, the overall assessment of the entrepreneurship project (Table 2). This finding is informed by the omission of requiring learners to evaluate, comment on, and analyse their own achievement and development in the project; as well as by the absence of a requirement to embed reflection and metacognition in the feedback provided to learners on their project work (Table 2). Feedback is a vital scaffold for project-based learning which can be strengthened through collaboration and carefully planned assessment (Moberg 2014; Thomas 2000). Reflection and metacognition also contribute to developing better entrepreneurial opportunities and products as part of entrepreneurship education (Du Toit 2020) and it should therefore be included as a key principle for the entrepreneurship project.

Notwithstanding the three sets of omitted principles discussed above, the findings show that most of the other principles of project-based learning is clearly indicated and/or implemented in the Consumer Studies entrepreneurship project (Table 2). The management of the learning environment is outlined clearly in the project documents (Table 2), for example, when it states that teachers must “determine which resources will be required to complete the project. Ensure that learners will have access to these resources” (DBE 2012, 6), and teachers report that they go to great lengths to ensure that learners have access to and use the resources needed (Table 2).

Entrepreneurship content knowledge is explicitly included and integrated in the project (Table 2), supporting the application of the learning and contributing to life-long learning (Du Toit 2018; Tolmay 2017), as well as contributing to learners' learning of the content, as evidenced from the remark by one teacher about improved exam performance related to principle 9 (Table 2). The findings therefore confirm that assessment of the project is planned in line with the intended learning content, but not with the intended 21st century skills development. On the other hand, the finding that learners are supported in developing a creative and innovative product – both in the project document and in its implementation in practice – is seen as constructive. Innovation and creativity are vital elements in both project-based learning (Tolmay 2017) as well as in entrepreneurship education (Du Toit 2020), which contributes to learners' positive experience of the learning process, and their potential to develop ideas into successful entrepreneurial opportunities.

Lastly, some contrasting findings emerged between the project document and its implementation regarding the roles of learners and teachers (Table 2). In project-based learning, the teacher should fulfil the role of facilitator (rather than instructor) and learners take more responsibility for their own and self-directed learning in the process (Bagheri et al. 2013; Moberg 2014; Tolmay 2017). Clarifying these roles would ensure that more of the benefits of the learner-centred learning associated with project-based learning reach learners.

Conclusion and recommendations

The analysis of the Consumer Studies entrepreneurship project documentation and feedback on its implementation in practice confirmed that the project holds many benefits for learners. It provides a vehicle for combining learning content and developing skills with real-life application possibilities, making the learning more interesting, memorable and life relevant. In addition, the project provides a unique opportunity for learners to develop insights into how they can develop their ideas into entrepreneurial opportunities, which they could pursue to help them overcome their probable unemployment fate. The potential value of the learning associated with this project, together with its potential to contribute to ameliorating youth unemployment, underscores the need to re-introduce it into Consumer Studies in the South African school curriculum, as well as to expand the inclusion of similar projects into other subjects or school grades. Re-introducing an improved entrepreneurship education project will also contribute positively to address the Department of Basic Education's directive to expand entrepreneurship education in South African schools.

Based on the findings of this study the following recommendations are made to strengthen the Consumer Studies entrepreneurship project:

- Frame and scaffold the project around a problem, to boost the associated benefits with problem-based learning for learners, such as developing problem-solving and critical thinking skills, or addressing life-relevant issues in a structured manner.
- Explicitly incorporate a requirement for some collaboration or teamwork as part of the project to foster the development of 21st century skills such as communication, effective teamwork, peer evaluation and – feedback.
- Expand and deepen the assessment of the project to involve learners more in their own personal development during the project, as well as in the evaluation of the process and product, by requiring reflective and metacognitive feedback, as well as assessment of peer's results.
- Clarify roles of teachers as facilitators to guide the process, and learners as being more responsible for their own learning and development. This will open up opportunities for more innovation and will support the development of critical self-directed learning skills.

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