

The enhancement of selected entrepreneurial competencies of grade 11 learners in Business Studies

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Abstract

South Africa is currently experiencing a high unemployment rate, especially among the youth, and it is believed that entrepreneurial activity could promote job creation, offering a solution to this challenge and simultaneously contributing to the economic growth of the country. Sound entrepreneurial education at secondary school level could enhance various entrepreneurial competencies, of which seven were focussed on in this study, namely problem recognition and -solving, creativity, flexibility, risk-taking, goal orientation and planning.

A quantitative research design involving an intervention on an experimental group 1 and experimental group 2 of secondary school learners was applied. Firstly experimental group 1 was exposed to the intervention while experimental group 2 attended normal classes. After completion of the intervention on experimental group 1, experimental group 2 was subjected to the same intervention, embracing 24 days (28 sessions of 40 minutes) of active learning in a simulated business set-up. The learners were subjected to three tests at different stages to measure the possible enhancement of the selected entrepreneurial competencies in both experimental group 1 and group 2.

The results clearly showed an enhancement of the selected entrepreneurial competencies after an intervention embracing an extended Business Studies curriculum.

Key phrases

active learning; entrepreneurial competencies; job creation; simulated business set-up

1. INTRODUCTION

Education is highlighted as one of the major contributors to the decline of poverty in a country (Lugemwa 2014:73). This viewpoint is supported by Herrington, Kew and Kew (2015:4) by indicating that one of the major constraints in South Africa is an inadequately educated workforce.

More specifically, entrepreneurial education can contribute to economic development and job creation, therefore the creation of an entrepreneurial society is crucial in a country. In a largely unemployed environment such as South Africa, where the unemployment rate in the first quarter of 2015 was a staggering 26.4% (Statistics South Africa 2015), many potential entrepreneurs start their businesses for the sole reason of survival. These entrepreneurs often establish their survivalist businesses without any formal training or education in entrepreneurship, which results in unequipped business owners that do not possess a relevant set of general skills to start and operate their businesses (Herrington *et al.* 2015:34).

Contemplating the deteriorating economic situation and high figures of unemployment globally, entrepreneurship and self-employment are likely to be attractive vocation options especially in emerging economies and may even be chosen above the decision to proceed with tertiary education. Secondary school education should elevate learners' awareness of the option to be entrepreneurs and the best way of achieving this awareness is through entrepreneurship teaching (Ernest, Matthew & Samuel 2015:27). Simulations during active learning have the advantage that it gives individuals an experience of transferring knowledge and applying it to real-life situations (Ross & Exposito 2014:1; Van der Aalst 2013:3).

Bearing in mind that only 28.3% of South African learners who completed grade 12 in 2014 did proceed to tertiary education (SA Department of Education 2015:65), it would be advantageous to develop the learners' entrepreneurial competencies in order to prepare them for a successful entrepreneurial career. Entrepreneurship is important to both typical business organisations, whose most important objective is profitability, as well as non-commercial organisations for example non-profit organisations such as charities where the main focus is to add value in terms of community needs and social responsibilities (Lessing & Jacobs 2014:11).

Although profitability is not a first priority for non-commercial organisations, they do need a sustainable income in order to reach their goals and managers of these organisations need to focus on long-term as well as short-term income generation (Singh & Mofokeng 2014:419). Should these organisations appoint employees with strongly developed entrepreneurial competencies, they should be able to add value regarding this need. Marques and Albuquerque (2012:55) underline the importance of entrepreneurship education and its effect on social and economic change.

2. LITERATURE REVIEW

Lugemwa (2014:76) defines competencies as a cluster of related knowledge, attitudes and skills, which an individual acquires to produce outstanding performances, while Schroeter (2008:2) defines a competency as the actual performance of a person in a specific situation and also the ability to meet complex demands, by drawing from and mobilising psychosocial resources in a particular context. Ahmad, Halim and Zainal (2010:73) proceed by stating that entrepreneurs need to equip themselves with relevant competencies to enhance their business performance. Supplementary, Lackéus (2013:12) used a framework consisting of knowledge, skills and attitudes for the possible development of entrepreneurial competencies.

According to Marques and Albuquerque (2012:58) the list of competencies entrepreneurs should possess is extensive and researchers do not seem to agree on specific lists of required competencies. However, in the literature some entrepreneurial competencies are highlighted more than others by researchers. These highlighted competencies also correspond broadly with the entrepreneurial competencies focused on in the curriculum of Business Studies (grades 10-12) in South African schools (SA Department of Education 2011:7). In this research seven entrepreneurial competencies were selected to focus on in an enriched curriculum, namely problem recognition and -solving, creativity, flexibility, risk-taking, goal orientation and planning.

2.1 Problem recognition

The entrepreneurial process consists of four stages, namely exploring the entrepreneurial context, identifying opportunities, starting a business and managing the business (Robbins &

Coulter 2016:294). Entrepreneurs are confronted with problem recognition and –solving throughout the whole entrepreneurial process.

Problem recognition and problem solving cannot be separated easily. According to Crebert, Patrick, Cagnolini, Smith, Worsfold and Webb (2011:10-11) as well as Tull (2012:1-2) the whole process includes five steps, of which recognition of the problem only is the first step, without focusing on its consequences or implications, followed secondly by the definition and analysis of the problem. This step involves a broad search and gathering of relevant information, which is essential to identify the problem that must be clearly described in terms of its cause and possible effect. Mathew (2014:206) confirms that a focused problem statement is needed for proper research of the problem.

2.2 Problem solving

Problem solving entails the last three steps of the comprehensive process of problem recognition and problem solving (Crebert *et al.* 2011:10-11; Tull 2012:1-2). The third step embraces the generation of possible solutions, which requires the creation of as many solutions as possible from different angles and perspectives without initially evaluating the solutions' feasibility. The fourth step entails choosing the best possible solution by evaluating solutions in terms of their feasibility, advantages and disadvantages. Lastly the chosen solution must be implemented. In case of the solution not addressing the problem adequately, the previous steps can be repeated to address areas of concern or that need improvement.

Entrepreneurs are continuously confronted by problem situations and tasks that need solving and the way in which they approach and solve problems is a determining factor in the success or failure of business operations (Mathew 2014:202).

2.3 Creativity

Various authors view creativity as the ability to create original ideas relevant to scientific and technological development and combine these in a unique way to reach unusual associations between ideas that lead to feasible alternatives (Chibuzor 2014:15; Jones & George 2013:162; Robbins & Coulter 2014:229). Creativity plays an important role in

entrepreneurship due to the fact that it may meet perceived needs or respond to opportunities for the business (Daft & Marcic 2015:330).

2.4 Flexibility

Flexibility is the ability to detect, interpret and respond quickly to special or unusual circumstances in the environment in order to address opportunities and weaknesses (Daft & Marcic 2015:83; Nel & De Beer 2014:201; Urban & Mothusiwa 2014:68). An entrepreneur has to be flexible enough to adapt to a changing environment (Urban & Mothusiwa 2014:62).

2.5 Risk-taking

Risk-taking is the characteristic that describes the extent to which a person takes risks and refers to the ability to take moderated, calculated risks with the provision of a reasonable chance for success (Farrington, Venter & Neethling 2012a:22).

Furthermore, risk-taking refers to the acceptance of risk in undertaking an activity, in other words, acting when the probability that an activity will be successful is less than 100 % (Lugemwa 2014:81). Calculated risks are taken when a reasonable chance for success is provided (Farrington, Venter, Schrage & Van der Meer 2012b:336). Spinelli and Adams (2012:41) view entrepreneurs as people that take calculated risks because they do not want to gamble and lose control.

2.6 Goal orientation

According to Cassidy and Kreitner (2011:320) a goal is a desired future state of an activity and goal setting is the process where objectives, deadlines and quality standards are used to improve individual or group performance. In addition, goals are the ends towards which effort is directed and goal orientation is the reason why a person engages in a specific task (Was 2006:531).

A goal should be challenging but not too difficult or unrealistic to reach and the reward as part of a good goal will be to give meaning to the activity and to assist entrepreneurs to ensure commitment (Bateman & Snell 2013:130).

2.7 Planning

According to Smith (2011: 89) planning involves anticipating the future needs and challenges of a business. He continues arguing that planning also involves sequencing future resources and behaviour to minimise delay in operations of the business. Farrington *et al.* (2012a:22) conclude that planning encompasses having goals, plans and the determination to follow through. Griffin (2014:68) states that the entrepreneur needs to plan within an environmental context and develop plans accordingly.

3. PROBLEM STATEMENT

Business Studies is an elective in the current secondary school curriculum in South Africa and is the only school subject enclosing a direct link with entrepreneurship development. Despite the obvious advantages held by the Business Studies grade 10-12 curriculum in enhancing entrepreneurial competencies, the National Diagnostic Report (SA Department of Education 2015:80) shows a remarkably low achievement of the desired entrepreneurial-based outcomes (only 58,1% learners achieved above 40% in 2014). This indicates that the curriculum does not specify methods and strategies to reach the outcomes regarding the development of entrepreneurial competencies.

It is therefore essential to develop pertinent teaching strategies for the enhancement of these competencies that will complement the customary classroom activities.

Consequently, the research question for this study is:

Will selected entrepreneurial competencies namely problem recognition and -solving, creativity, flexibility, risk-taking, goal orientation and planning be enhanced by enriching this section in the Business Studies curriculum of secondary schools through adding action learning activities in a simulated business set-up?

4. OBJECTIVES

The comprehensive goal was to develop an extended Business Studies school curriculum including additional activities embodied in active learning specifically in a simulated business

set-up regarding seven selected entrepreneurial competencies, and to measure the effect of the intervention on learners' entrepreneurial competencies.

In order to reach the goal, the following objectives were set:

- the design and application (by means of an intervention) of practically oriented activities to enhance entrepreneurial competencies in the areas of problem recognition and -solving, creativity, flexibility, risk-taking, goal orientation and planning.
- the quantitative measurement of learners' performance regarding the abovementioned entrepreneurial competencies after having completed an intervention;
- the proposal of recommendations for entrepreneurial education of secondary school learners in Business Studies.

5. RESEARCH METHODOLOGY

The nature of this study was quantitative, descriptive and exploratory.

5.1 Research design

An intervention aimed at improving entrepreneurial competencies through active learning in a simulated entrepreneurial business set-up was designed, with the focus on aspects such as new ideas for sustainable income generation, handling of problems, exposure to business risks and exploring the present business environment. Two experimental groups (group 1 and 2) were subjected to the same intervention, but at different stages.

At the commencement of the investigation a first scenario imitating an entrepreneurial business was presented to both experimental group 1 and group 2, after which the same pre-test was administered to both groups, containing questions that bear reference to the selected entrepreneurial competencies involved in the given scenario.

Subsequently experimental group 1 was separated from the standard Business Studies class, divided into five clusters and exposed to the intervention (phase 1). This comprised of the application of a teaching strategy for the improvement of the seven selected entrepreneurial competencies, during 28 contact sessions over a period of 24 days.

Various sections of the curriculum (business activities such as planning, buying, manufacturing, selling and controlling by ways of checking the financial results) were covered. A simulated business, for each of the five clusters in the class was proposed, for example a simulated catering business. The simulated businesses were developed by the authors.

In the simulation game each cluster of learners was expected to draw up a plan for their specific business by identifying objectives, prioritising tasks, working to deadlines, setting clearly defined steps, developing a contingency plan and compiling a work schedule. While running the simulated businesses, unexpected problems and circumstances occurring in their simulated businesses were introduced in order to extend the challenge to run the simulated business effectively.

After completion of phase 1 both groups were presented with a second scenario different from scenario 1, followed by post-test 1 consisting of questions and sub-questions based on scenario 2. Next the second phase, which embraced the same intervention, was performed on experimental group 2 only, also divided into five clusters, after which both groups were given a third scenario, followed by post-test 2 (same questions as in post-test 1) based on scenario 3. The second experimental group was included in order to test the effect of the intervention twice and secondly to comply with recommendations by the ethical committee.

5.2 Population and sampling

A nonrandomized control group pre-test-post-test experimental design (Leedy & Ormrod 2005: 227) was applied (Table 1) and data were collected quantitatively. The study population was grade eleven learners enrolled for Business Studies in a secondary school.

A non-probability sample of these learners consisting of two grade 11 classes, one of which formed experimental group 1 and the other experimental group 2, was chosen from one secondary school in Potchefstroom, North-West province. This sample was not large or representative enough for the generalisation of the results to the larger South African context but the results may give an indication of possible results of a larger group. This research is rather an in-depth examination of the study population and their response to the teaching strategy proposed in this article.

TABLE 1: The nonrandomized control group pre-test-post-test design

Group	Pre-test 1	Intervention	Post-test 1	Intervention	Post-test 2
Experimental group 1 (n = 23)	✓	✓	✓	Continue with normal school program	✓
Experimental group 2(n=24)	✓	Continue with normal school program	✓	✓	✓

Source: Adapted from Leedy & Ormrod 2005:227

5.3 Measuring instrument

One set of questions was developed by the researcher and the same set was used for the pre-test, post-test 1 and post-test 2. The same questions were used because they were generic to entrepreneurial businesses, covered the seven entrepreneurial competencies listed in the objectives and were derived from and applicable to all three scenarios.

5.4 Data collection

The written answers to the questions on the scenarios were assessed by the researcher and moderated by an independent teaching adviser in order to determine the achieved competency. To be able to make fair quantitative interpretations of achieved competence all the answers were marked by means of an assessment rubric. The scores from the assessment rubric were transferred to a four-point Likert scale where response category 1 = cannot demonstrate competency; 2 = demonstrates competency with gaps, 3 = demonstrates competency and 4 = demonstrates outstanding competency.

5.5 Data analysis

The data analysis was performed by the Statistical Consultation Service of NWU (Potchefstroom campus) by using Statistica (StatSoft Inc. 2007).

The following analyses were performed:

- Frequencies, means and standard deviations (Mean scores for the various tests are given in Tables 2 and 3)
- Validity was investigated by means of exploratory factor analysis while reliability was inspected by computing Cronbach's alpha coefficients (only one competency).
- Statistical differences between the various tests were determined by t-tests with $p \leq 0.05$ as criterion for statistical significance.
- Cohen's (1988:25) effect sizes (d-values) were used to compute the practical significance of the differences. Cohen's guidelines for the interpretation of the d-values are the following:
 $d = 0.2$ small effect (insignificant difference)
 $d = 0.5$ medium effect
 $d = 0.8$ large effect

6. RESULTS

The results will be discussed according to the objectives.

6.1 Development of an enriched Business Studies curriculum

The first objective was to develop and apply a supplemented Business Studies curriculum for grade 11 learners, including aspects such as problem recognition and -solving, creativity, flexibility, risk-taking, goal orientation and planning. The second objective was to assess learners' attainment regarding the above-mentioned competencies quantitatively by means of a test, consisting of a set of generic questions applicable to the three different business scenarios, upon having completed an intervention session in the Business Studies subject.

6.2 Psychometric properties of the measuring instrument

6.2.1 Validity

According to Delport and Roestenburg (2011:173) validity is achieved when a measuring instrument measures the concept under discussion as intended and when the concept is measured accurately. Various strategies such as construct validity, content validity and face validity can be used to determine the validity of measuring instruments.

Construct validity (factor analysis) is based on the logical relationships among variables (Babbie 2008:147). An exploratory factor analysis on items 1 to 5 in this study returned two factors explaining 63.90% of the variance in the data, yielding item 1 as a factor on its own and items 2 to 5 as a second factor. The contents of the items clearly indicated that the construct problem recognition was represented by item 1 and problem solving by items 2 to 5. Thus construct validity of the abovementioned constructs was assured. Construct validity for items 6 -10 could not be assessed due to the singularity of these items so the researcher sufficed with an investigation into content validity.

Content validity refers to the evaluation of questions to determine if the questions cover the range of meanings included within a concept (Delpont and Roestenburg 2011:173). When investigating content validity a thorough analysis and evaluation of the items are performed to assure that the items are representative of the specific construct and within the boundaries thereof. The content validity of this test was determined by the teaching advisor.

6.2.2 Reliability

Reliability indicates the consistency of a measurement, meaning that a reliable measuring instrument will yield consistent numerical results each time it is applied (Delpont & Roestenburg 2011:177; Struwig & Stead 2013:138). The Cronbach alpha coefficient for problem solving was calculated as 0.61. According to Field (2005:640) reliability of the construct problem solving was assured. For the construct problem recognition a Cronbach alpha value could not be calculated since the construct consisted of only 1 item. Similarly, Cronbach alpha values were also not calculated for items 6 to 10.

Please note, it is only possible to calculate Cronbach alpha coefficients (indicating internal consistency among items) in cases where constructs are represented by more than one item. In this study the constructs for problem recognition (construct 1), creativity (construct 6), flexibility (construct 7), risk-taking (construct 8), goal orientation (construct 9) and planning (construct 10), were represented by only one item each.

Some procedures as suggested by Delpont and Roestenburg (2011:177) were followed to increase the reliability of the measuring instrument. The researcher attempted to measure the variables at the most accurate level possible, tests were taken under standardised

conditions, the degree of difficulty of the tests were monitored by ways of a pilot study, the influence of external events was played down, instructions for taking the tests were standardised and scoring procedures were consistent as a rubric for assessment was used.

6.3 Results and ANOVA of the empirical study

6.3.1 Experimental group 1

In Table 2 the results of the statistical analysis regarding the seven competencies applied in the intervention are provided.

TABLE 2: Results and ANOVA for Entrepreneurial competencies (EC) of experimental group 1 (n=23)

Entrepreneurial competencies	Mean pre-test	Mean post-test 1	p-value	d-value	Mean post-test 2	p-value	d-value
Problem recognition	2.09	2.96	< 0.05	2.6	2.74	0.7	0.4
Problem solving	2.07	2.31	< 0.05	0.6	2.35	1.0	0.1
Creativity	2.13	2.52	<0.05	0.8	2.65	0.12	0.2
Flexibility	1.04	1.70	< 0.05	1.0	1.43	1.0	0.4
Risk-taking	1.04	2.00	< 0.05	1.4	1.70	0.48	0.4
Goal orientation	1.00	1.61	< 0.05	1.1	1.09	0.002	1.0
Planning	1.04	1.78	< 0.05	1.3	1.87	1.0	0.2

Source: Calculated from survey results

6.3.1.1 Problem recognition

The mean value for the pre-test on problem recognition was 2.09 and for post-test 1 it was 2.96, implying an improvement in this competency after the intervention. The ANOVA which measures statistical significance, shows that the p-value was <0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for problem recognition. Furthermore, a d-value of 2.6 indicates that the improvement was also

highly practically significant. According to Cohen (1988:25), a d-value > 0.8 has a large practically significant effect.

The mean value for post-test 1 on problem recognition was 2.96 and for post-test 2 it was 2.74, indicating a slight deterioration in skills of problem recognition from post-test 1 to post-test 2. The p-value was 0.7, indicating no statistically significant difference between post-test 1 and post-test 2 in terms of problem recognition scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.4 indicates that the decline was also practically insignificant with a small effect (Cohen 1988:25).

6.3.1.2 Problem solving

The mean value for the pre-test on problem solving was 2.07 and for post-test 1 it was 2.31, implying an improvement in this competency after the intervention. The ANOVA shows that the p-value after the intervention was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for problem solving. Furthermore, a d-value of 0.6 indicates that the improvement was also practically significant with a moderate effect (Cohen 1988:25).

The mean value for post-test 1 on problem solving was 2.31 and for post-test 2 it was 2.35, indicating a minimal improvement in skills of problem solving from post-test 1 to post-test 2. The p-value was 1.0, indicating no statistically significant difference between post-test 1 and post-test 2 in terms of problem solving scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.1 indicates that the decline was practically insignificant with a small effect (Cohen 1988:25).

6.3.1.3 Creativity

The mean value for the pre-test on creativity was 2.13 and for post-test 1 it was 2.52, implying an improvement in this competency after the intervention. The ANOVA which measures statistical significance, shows that the p-value after the intervention was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for creativity. Furthermore, a d-value of 0.8 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

The mean value for post-test 1 on creativity was 2.52 and for post-test 2 it was 2.65, indicating a slight improvement in skills of creativity from post-test 1 to post-test 2. The p-value was 0.12, indicating no statistically significant difference between post-test 1 and post-test 2 in terms of creativity scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.2 indicates that the decline was practically insignificant as well (Cohen 1988:25).

6.3.1.4 Flexibility

The mean value for the pre-test on flexibility was 1.04 and for post-test 1 it was 1.70, implying an improvement in this competency after the intervention. The ANOVA which measures statistical significance, shows that the p-value after the intervention was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for flexibility. Furthermore, a d-value of 1.0 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

The mean value for post-test 1 on flexibility was 1.70 and for post-test 2 it was 1.43, indicating a small deterioration in flexibility skills from post-test 1 to post-test 2. The p-value was 1.0, indicating no statistically significant difference between post-test 1 and post-test 2 in terms of flexibility scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.4 indicates that the decline was also practically insignificant (Cohen 1988:25).

6.3.1.5 Risk-taking

The mean value for the pre-test on risk-taking was 1.04 and for post-test 1 it was 2.00, implying an improvement in this competency after the intervention. The ANOVA shows that the p-value after the intervention was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for risk-taking. Furthermore, a d-value of 1.4 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

The mean value for post-test 1 on risk-taking was 2.00 and for post-test 2 it was 1.70, indicating a small deterioration in skills of flexibility from post-test 1 to post-test 2. The p-value was 0.48, indicating no statistically significant difference between post-test 1 and post-

test 2 in terms of flexibility scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.4 indicates that the decline was also practically insignificant (Cohen 1988:25).

6.3.1.6 Goal orientation

The mean value for the pre-test on goal orientation was 1.00 and for post-test 1 it was 1.61, implying an improvement in this competency after the intervention. The ANOVA shows that the p-value after the intervention was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for goal orientation. Furthermore, a d-value of 1.1 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

The mean value for post-test 1 on goal orientation was 1.61 and for post-test 2 it was 1.09, indicating a deterioration in goal orientation skills from post-test 1 to post-test 2. The p-value was 0.02, indicating an unexpected statistically significant difference between post-test 1 and post-test 2 in terms of goal orientation scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 1.0 indicates that the decline was highly practically significant as well (Cohen 1988:25).

6.3.1.7 Planning

The mean value for the pre-test on planning was 1.04 and for post-test 1 it was 1.78, implying an improvement in this competency after the intervention. The ANOVA shows that the p-value was < 0.05 ($p = 0.00000$), indicating a statistically significant difference (Steyn 2005:1) between the pre-test and post-test 1 for planning. Furthermore, a d-value of 1.3 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

The mean value for post-test 1 on planning was 1.78 and for post-test 2 it was 1.87, indicating a small improvement in planning skills from post-test 1 to post-test 2. The p-value was 1.00, indicating no statistically significant difference between post-test 1 and post-test 2 in terms of planning scores for experimental group 1 that was not submitted to the intervention at this stage of the research. The d-value of 0.2 indicates that the improvement was also practically insignificant (Cohen 1988:25).

6.3.2 Experimental group 2

In Table 3 the results of the statistical analysis regarding the seven competencies addressed in the intervention respectively are provided.

TABLE 3: Results and ANOVA for entrepreneurial competencies for experimental group 2 (n=24)

Entrepreneurial competencies	Mean pre-test	Mean post-test 1	p-value	d-value	Mean post-test 2	p-value	d-value
Problem recognition	2.17	2.42	0.3	0.7	2.96	< 0.05	1.5
Problem solving	2.01	1.91	1.0	0.5	2.38	< 0.05	2.2
Creativity	2.04	1.71	1.0	0.8	2.75	< 0.05	2.5
Flexibility	1.29	1.13	1.0	0.2	1.71	< 0.05	1.2
Risk-taking	1.16	1.08	1.0	0.2	2.17	< 0.05	2.3
Goal orientation	1.17	1.13	1.0	0.1	1.29	1.0	0.4
Planning	1.21	1.13	1.0	0.2	2.13	< 0.05	2.4

Source: Constructed from own results

6.3.2.1 Problem recognition

The mean value for the pre-test on problem recognition was 2.17 and for post-test 1 it was 2.42, implying a small improvement in this competency, although experimental group 2 was not submitted to the intervention program at this stage. The ANOVA which measures statistical significance shows that the p-value after the intervention was 0.3, indicating no statistically significant difference (Steyn 2005:1) between the two tests. However, a d-value of 0.7 indicates that the improvement was practically significant (Cohen 1988:25).

The mean value for post-test 1 on problem recognition was 2.42 and for post-test 2 it was 2.96, indicating an improvement in problem recognition skills from post-test 1 to post-test 2 after the intervention for experimental group 2. The p-value was < 0.05, indicating a

statistically significant difference between these tests. The d-value of 1.5 indicates that the improvement was also highly practically significant (Cohen 1988:25).

6.3.2.2 Problem solving

The mean value for the pre-test on problem solving was 2.01 and for post-test 1 it was 1.91, implying a slight deterioration in this competency between the two tests. The ANOVA shows that the p-value was 1.0, indicating no statistically significant difference (Steyn 2005:1) between these tests. A d-value of 0.5 indicates that the improvement was practically significant with a medium effect (Cohen 1988:25).

The mean value for post-test 1 on problem solving was 1.91 and for post-test 2 it was 2.38, indicating an improvement in problem solving skills of from post-test 1 to post-test 2 after the intervention. The p-value was <0.05 , indicating a statistically significant difference between post-test 1 and post-test 2 in terms of problem solving scores. The d-value of 2.2 indicates that the improvement was also highly practically significant (Cohen 1988:25).

6.3.2.3 Creativity

The mean value for the pre-test on creativity was 2.04 and for post-test 1 it was 1.71, implying a decline in this competency. The ANOVA shows that the p-value was 1.0, indicating no statistically significant difference (Steyn 2005:1) between these two tests. However, a d-value of 0.8 indicates that the decline was practically significant (Cohen 1988:25).

The mean value for post-test 1 on creativity was 1.71 and for post-test 2 it was 2.75, indicating an improvement in creativity skills after the intervention. The p-value was <0.05 , indicating a statistically significant difference between the two tests. The d-value of 2.5 indicates that the improvement was also highly practically significant (Cohen 1988:25).

6.3.2.4 Flexibility

The mean value for the pre-test on flexibility was 1.29 and for post-test 1 it was 1.13, implying a slight decline in this competency. The ANOVA shows that the p-value was 1.0, indicating no statistically significant difference (Steyn 2005:1) between the two tests.

Furthermore, a d-value of 0.2 indicates that the decline was not practically significant either (Cohen 1988:25).

The mean value for post-test 1 on flexibility was 1.13 and for post-test 2 it was 1.71, indicating an improvement in flexibility skills from post-test 1 to post-test 2 after the intervention. The p-value was < 0.05 , indicating a statistically significant difference between the two tests, while the d-value of 1.2 indicates that the improvement was highly practically significant as well (Cohen 1988:25).

6.3.2.5 Risk-taking

The mean value for the pre-test on risk-taking was 1.16 and for post-test 1 it was 1.08, implying a slight decline in this competency. The ANOVA shows that the p-value was 1, indicating no statistically significant difference (Steyn 2005:1) between the two tests. Furthermore, a d-value of 0.2 indicates that the decline was not practically significant either (Cohen 1988:25).

The mean value for post-test 1 on risk-taking was 1.08 and for post-test 2 it was 2.17, indicating an improvement in risk-taking skills from post-test 1 to post-test 2 after the intervention. The p-value was < 0.05 , indicating a statistically significant difference between the two tests. The d-value of 2.3 indicates that the improvement was also highly practically significant (Cohen 1988:25).

6.3.2.6 Goal orientation

The mean value for the pre-test on goal orientation was 1.17 and for post-test 1 it was 1.13, implying a trivial decline in this competency. The ANOVA shows that the p-value was 1.0, indicating no statistically significant difference (Steyn 2005:1) between the two tests. Furthermore, a d-value of 0.1 indicates that the decline was not practically significant either (Cohen 1988:25).

The mean value for post-test 1 on goal orientation was 1.13 and for post-test 2 it was 1.29, indicating a small improvement in goal orientation skills from post-test 1 to post-test 2 after the intervention. The p-value was 1.0, indicating no statistically significant difference

between these tests. The d-value of 0.4 indicates that the improvement was practically significant with only a small effect (Cohen 1988:25).

6.3.2.7 Planning

The mean value for the pre-test on planning was 1.21 and for post-test 1 it was 1.13 implying a slight decline in this competency. The ANOVA shows that the p-value was 1.0, indicating no statistically significant difference (Steyn 2005:1) between the two tests. Furthermore, a d-value of 0.2 indicates that the decline was not practically significant either (Cohen 1988:25).

The mean value for post-test 1 on planning was 1.13 and for post-test 2 it was 2.13, indicating an improvement in planning skills of from post-test 1 to post-test 2 after the intervention. The p-value was <0.05, indicating a statistically significant difference between the two tests, while the d-value of 2.4 indicates that the improvement was also highly practically significant (Cohen 1988:25).

An overview of the results for both experimental group 1 and experimental group 2 confirms that the intervention with its practical orientation had a very positive effect on the learners' entrepreneurial competencies. Lugemwa (2014:84) also proposes a suitable secondary school curriculum that includes learning by doing.

8. SUMMARY

In order to improve selected entrepreneurial competencies of grade 11 Business Studies learners, an augmented curriculum focussing on active learning in a business simulated set-up was developed and applied. Questions were administered to determine whether an improvement in entrepreneurial competencies could be detected after the intervention, and if so, what the extent of the improvement was.

Results revealed that for experimental group 1 the selected entrepreneurial competencies increased statistically and practically significantly after application of the intervention (results of post-test 1). Between post-test 1 and post-test 2, consisting of the same questions (with no intervention in between, and a time lapse of approximately four weeks) four of the competencies (problem recognition, flexibility, risk-taking and goal orientation) decreased practically but not statistically significantly while three (problem solving, creativity and

planning) increased slightly but not statistically or practically significantly. From this it can be gathered that the effect of the intervention is not sustainable if the practice is discontinued and it can possibly be seen as a tendency to decrease.

Regarding results of experimental group 2, nearly no differences were found between the pre-test and post-test 1 since this group had no treatment between the two tests. The differences were also neither statistically nor practically significant. Between post-test 1 and post-test 2 (consisting of the same questions, with an intervention between the two tests and no time lapse between the intervention and post-test 2) all the competencies increased statistically and practically significantly except for goal orientation where the increase was not statistically significant. This supports the previous derivation that the intervention had a definite positive effect on selected entrepreneurial competencies of learners especially shortly after the intervention. Experimental group 2 was subjected to the intervention in order to assess the effect of the intervention twice, and also to investigate the effect of a time lapse between application of the intervention and the different tests.

9. CONCLUSIONS

Regarding the objectives, the results of this investigation show that the intervention program, embracing a curriculum with a practical orientation, had a very positive effect on the learners' entrepreneurial competencies for both experimental groups 1 and 2. This may imply that the target regarding the teaching strategy proposed in this article was achieved.

The researcher recommends an extended Business Studies curriculum in secondary schools with a strong focus on active learning in a business simulated set-up and that this approach should be continuous, otherwise the effect might not be sustainable. It is further recommended that there should be a definite focus on a variety of entrepreneurial competencies. Such a curriculum could have the advantage that learners would be challenged to be entrepreneurial in a wide range of business scenarios, which would enable them to apply their competencies in numerous entrepreneurial careers, which could address the serious problem of youth unemployment.

Apart from being employed in typical profit-generating businesses, entrepreneurs with enhanced entrepreneurial competencies could also be used effectively in non-commercial

organisations with a social responsibility focus, in order to assist such organisations to generate a much needed sustainable income and become economically empowered.

Finally the researcher recommends that the proposed active learning framework is implemented for grade 11 learners but also for grade 12, and eventually the principle can be started in elementary school in the form of entrepreneurial principles and applications in small projects.

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