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## **Undergraduate student teachers' views and experiences of a compulsory course in research methods**

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In comparison to attention given to research methods for education students at postgraduate level, the offering of research methods for education students at undergraduate level is less often considered. Yet, it is agreed that research methods for undergraduate level students is important for shaping student attitudes, learning and achievement in the field of research. In concurrence with the aforementioned, this paper aimed to examine the views and experiences of a conveniently sampled group of 124 undergraduate South African student teachers of a compulsory course in research methods. By following a quantitative research design, the authors determined the sampled students' experiences of research methods, how they value them, and how they perceive the pedagogy, which in this particular instance was 'working-in-pairs', to teach research methods. For all three the mentioned facets, the findings reflected positive results. However, the research results also pointed to specific issues which might enrich the teaching and status of research methods for undergraduate level education students.

**Keywords:** active learning; research methods; undergraduate student teachers

### **Introduction**

The apparent benefits of pre-service, student teachers' exposure to the theory and practice of research methods are indisputable. However, courses in research methods are regarded by many students as complex and strenuous. Moreover, poor performance in research methods courses could result in negative mindsets towards the field of educational research as a whole. In this regard, Holmberg (2006) and Reis-Jorge (2005) caution that although there is a significant international interest in promoting research skills and postgraduate studies, surprisingly little consideration has been paid to research methods in the context of undergraduate studies. Garner, Wagner and Kawulich (2009) also point out that only a few systematic discussions related to curriculum design or the teaching of research methods exist. This compelled the same authors to appeal for the development of "a *pedagogical culture* in which ideas are exchanged within a climate of systematic debate, investigation and evaluation of teaching and learning the subject" (Wagner, Garner & Kawulich, 2011:75).

Factors such as the aforementioned, present particular challenges in terms of curriculum and pedagogical matters to lecturers responsible for the teaching of research methods courses for undergraduate level students. Key to such challenges would include the ability to positively shape students' attitudes, learning and achievement in the field of research methods, as these are fundamental in sustaining future quality research outputs, especially in Education. This paper reconceptualises the design of teaching and learning environments for a course in research methods that offers the potential to reshape student attitudes, to arouse interest, to enhance achievement and to promote the ideals of teachers becoming researchers.

### **Research Question and Purpose Statement**

Derived from the introductory remarks, the research reported in this paper was prompted by the following research question:

#### **What are the views and experiences of a cohort of undergraduate South African student teachers regarding a compulsory course in research methods?**

The corresponding purpose of the research was to determine the views and experiences of a cohort of undergraduate South African student teachers regarding a compulsory course in research methods.

To attain the stated purpose, the researchers embarked on a literature and quantitative empirical study. The literature study intended to provide a conceptual framework for contextualising the research and informing the empirical part of the study. The subsequent sections report on the literature study by focusing on the rationale behind the inclusion of a research methods course in undergraduate teacher education studies, and its accompanying problems. Since 'learning-in-pairs' was primarily used as teaching approach for this specific cohort of students, its relation to active learning is also clarified by following a literature review. Thereafter, the empirical study receives attention.

### The Rationale Behind the Inclusion of a Research Methods Course in Undergraduate Teacher Education Studies

Contemporary teacher education programmes are characterised by an evolving emphasis on the teacher's role as researcher. Enabling pre-service teachers "to become critical consumers of research and to engage in practitioner initiated inquiry" (Gitlin, Barlow, Burbank, Kauchak & Stevens, 1999:754), has become the impelling rationale behind the vision of teacher-as-researcher. Complementing impetuses for this vision include the movement towards "evidence-based practice" (James, 2006; Taylor & Muncer, 2000:359), the fact that research skills are perceived as essential for functioning effectively in a global knowledge economy (Davis, Evans & Hickey, 2006), and the fostering of lifelong learning, professional development and personal growth (Dohm & Cummings, 2002; Reis-Jorge, 2005; Waite & Davis, 2006). While Katz and Coleman (2001) maintain that it develops students' self-confidence and self-esteem, Ware, Badura and Davis (2002) reason that a course in research methods for the undergraduate level equips students to pursue their postgraduate studies with more confidence.

Adamsen, Larsen, Bjerregaard and Madsen (2003) and Tan (2007) express the opinion that undergraduate research paves the way for integrating young scholars into communities of learning; that it motivates undergraduates to become independent thinkers; prepares them for postgraduate programmes and provides opportunities for communicating or showcasing students' work. Schindler (2011) underscores several of the aforementioned factors when suggesting that the inclusion of a course in research methods could increase prospective teachers' critical thinking, nurture the attribute of appropriate scientific scepticism, and encourage independent thinking. Denoting the relation between research and teaching, Parks, Faw and Goldsmith (2011:407) assert that a course in research methods addresses a basic literacy – "a 4<sup>th</sup> R" – required for successful, reflexive teaching. Moreover, such a course enables students to develop a vocabulary applicable to their field of research (Parks et al., 2011). More recently, Kotsopoulos, Mueller and Buzza (2012) reiterated that it is essential to forge links between research and practice in meaningful ways during pre-service teacher education. These authors base their argument on the premise that the development of a research disposition is consistent with the work of teachers, which requires moment-to-moment decision-making (e.g. what questions to ask), as well as substantial or sustained decision-making (such as informed beliefs about assessment practises) (Kotsopoulos et al., 2012). Both these types of decision-making resemble

a typical research process, which involves the assessment of two or more options, a decision to apply an intervention or strategy, an evaluation of the preceding decision and the strength of mind to modify or repeat a decision (Kotsopoulos et al., 2012).

Magos (2012) argues that the development of action-research competencies could be shaped by including research methods courses in initial and in-service teacher education curricula. Van der Linden, Bakx, Ros, Beijaard and Vermeulen (2012) accentuate this claim, by suggesting that it is not only essential that teacher education programmes teach student teachers how to conduct research, but also to use the results of other research. The same authors, quoting from a substantial range of sources, conclude that research methods could help to foster a critical and reflective attitude towards teachers' practice; could help to develop teachers' knowledge to enable them to provide evidence of what works in practice and why; and could assist teachers to translate research results into the improvement of practice (Van der Linden et al., 2012).

By emphasising possible benefits, the rationale for including a research methods course in undergraduate teacher education studies, is thus well-documented and well-justified in the literature.

### Accompanying Problems of a Research Methods Course in Undergraduate Teacher Education Studies

In spite of the merits attributed to the inclusion of research methods in the curricula of student teachers as outlined in the previous section, the literature also reveals student teachers' antagonistic views to research methods courses. In relation to this, Van der Linden (2012:18) cautions that it is essential "to take student teachers' potential preconceptions of research into consideration when they are introduced to research, because their preconceptions might influence the development of their attitude towards research and eventually their behaviour regarding conducting and using research practice". Student biasedness towards research is often fuelled by student frustration, since research methods courses are often considered to be nightmarish by the students who undertake them (Schutz, Drogosz, White & Distefano, 1998). Gal and Ginsburg (1994) mention that students' attitudes towards research methods are frequently characterised by negativity. This view is underscored by various authors such as Macheski, Buhrmann, Lowney and Bush (2008), who maintain that students in general are inclined to display negative attitudes towards research methods, and Sizemore and Lewandowski (2009), who claim that compulsory research methods courses alleviate negative attitudes amongst students. Time con-

straints, conflicting identities experienced by students (e.g. acting as student, researcher and teacher) (Price, 2001; Smith & Sela, 2005), the pedagogy used to present such courses and students' lack of interest due to confusion about the goals, relevance, usability and value of research (Murtonen & Lehtinen, 2003; Niven, Roy, Schaefer, Gasquoine & Ward, 2013; Pan & Tang, 2004; Pfeffer & Rogalin, 2012; Van der Linden et al., 2012), are often seen as contributing factors towards students' negative attitudes regarding research methods. In addition, students find the descriptions of research components vague, meaningless and difficult to comprehend (Burrows & Baillie, 1997; Taylor & Muncer, 2000); and believe that research methods courses are overwhelming, with difficult concepts to master (Lodico, Spaulding & Voegtle, 2004; Niven et al., 2013). Over and above the fact that research methods courses are broadly "unpopular" amongst students, they are also associated with high anxiety levels amongst them (Papanastasiou & Zembylas, 2008:155; Schober, Wagner, Reimann, Atria & Spiel, 2006:74). Although Onwuegbuzie (2000) initially argued that anxiety could be attributed to students' poor performance in the area of research, three types of contributory factors towards anxiety associated with learning and applying research methods are later identified. These include situational factors, such as students' prior knowledge and experience; dispositional factors such as student self-esteem, and environmental factors, which include varieties of learning styles (Onwuegbuzie & Wilson, 2003). Papanastasiou and Zembylas (2008) regard the perceived level of difficulty and applicability to real-life situations of research concepts as additional factors of causal anxiety.

Based on the literature studied until this point, the apparent opposite opinions of teacher educators and undergraduate student teachers regarding experiences and the value of research methods courses seems evident. In the following section, the enacted pedagogy within the context of this study will be theoretically illuminated.

#### The Relation Between 'Learning-In-Pairs' and Active Learning

The enacted pedagogy in the context of this study originates from two arguments. Firstly, it has been reasoned that the higher education sector witnessed vigorous challenges in recent years (Lombard, 2011) including the escalation in student numbers or the "massification" of higher education (Kvale, 2007:67), and how it impacts on the quality of teaching and learning, exemplifies one such challenge. An immediate consequence of accommodating higher student numbers in especially undergraduate

classrooms is that lecturers revert to "teacher-centred" practices, where content coverage rather than student-engaged learning enjoys preference (Lombard, 2008:1038). In response to this challenge, it was argued that 'learner-centred' practices required reconsideration. The second argument relates to the assumption that when opportunities are created for students to work together, students not only learn from each other, but also associate themselves with each other's situation (Van der Linden, 2012), which can be seen as an important facet of teacher research (Ponte, Ax, Beijaard & Wubbels, 2004). In this regard, active learning has been identified in the literature as a useful learner-centred teaching approach (Odom, Glenn, Sanner & Cannella, 2009) and was used as enacted pedagogy in the context of this study. Active learning is philosophically founded on constructivism, and more particularly, on Vygotsky's (1978) accentuation of social interaction in the learning process, and Lave and Wenger's (1991) notion of a community of practice, in which interactions and participation shape learning. Mann (2011) endorses the two aforementioned views when suggesting that learning is closely related to context, and that successful learning is reliant on the active engagement and participation of the learner in the activities of the community in which learning ought to take place. Through active learning, it is assumed that students are involved in their own learning, that they are able to attain complex objectives, and that they are absorbed in problem solving and critical thinking (Keenan & Fontaine, 2012; Vos & De Graaff, 2004). Features of active learning include active engagement in the learning task, taking responsibility for own and others' learning and the implementation of teaching activities that facilitate and stimulate activity (Bonwell & Eisen, 1991; Kane, 2004).

Understood in this way, active learning promotes a number of pedagogical and practical benefits. In general, Petocz, Duke, Bilgin and Reid (2012) assert that active learning supports learning opportunities. In addition, active learning could also encourage factors such as those listed below (cf. Riese, Samara & Lillejord, 2012:602; Scott-Ladd & Chan, 2008:231-232; Teo, Segal, Morgan, Kandlbinder, Wang & Hingorani, 2012:473):

- The advancement of social, cooperative, collaborative and interpersonal skills;
- assisting students to take greater ownership of their learning;
- sharing knowledge, which implies that students not only learn from each other but also develop communities of learning;
- developing and improving communication, conflict resolution, and negotiating skills, which in turn builds self-esteem, self-efficacy, self-worth and adaptability;

- reinforcing the exploration of different perspectives;
- developing problem-solving and critical thinking skills;
- creating a sense of 'connectedness' by means of working towards shared goals, the recognition of interdependence and the acceptance of responsibility for sharing and completing a given task; and
- the acquisition of a variety of generic skills such as leadership and time management.

Problems associated with active learning usually transpire through students' previous negative experiences within such situations, and could include the following (cf. Brooks & Ammons, 2003:268; Scott-Ladd & Chan, 2008:232-233):

- uncertainty about member roles;
- conflict between group members;
- coordination of timetables and meeting times;
- insecurity in terms of leadership;
- differences in member expectations;
- uneven workload distribution;
- managing technology incompatibilities;
- colliding personality types; and
- social loafing or free-riding.

According to Bonwell and Eisen (1991), methodological examples of active learning include, among other things, peer reviews, sharing pairs, role-playing, debates, case studies and cooperative learning. Hence, it can be inferred that students working in pairs, groups or teams, as is the case in this study, are involved in active learning.

### **Contextualising the Empirical Research**

#### **Background**

Two modules, covering research methods, are included in the final year teacher education curriculum of South African students enrolled for the four year Bachelor of Education (B.Ed) degree. Within the context of this study, these modules comprise an orientation towards research methods within educational contexts and are anchored in a constructivist approach. The first module addresses topics such as research as a cyclic process, the language of research, the identification and formulation of a research problem, conducting a literature review, and research ethics. The second module comprises a differentiation between different research paradigms and research designs, sampling, and approaches to data collection and data analysis. In both modules, factual knowledge is highlighted and introduced by the lecturers in a weekly, one-hour contact period, and is further made accessible to students through a prescribed textbook and additional lecturer notes. Working within a social constructivist framework, students are expected to complete structured exercises on the theory by collaboratively working in pairs. The theory culminates in the planning, preparation and

submission of a research proposal, which is also done in the same pairs. In an attempt to avoid some of the problems associated with active learning cited earlier in this paper, students are free to choose their own partners with whom they would prefer working throughout the year, as well as to determine their own work schedule, provided that the predetermined range of work and submission dates are honoured.

#### **Research Sample**

The cohort of 158 fourth year B.Ed. students registered at a South African university for the two research methods modules in 2012, formed the potential sample for this research. Though non-probability, convenient sampling does not guarantee a representative sample of the population, the mentioned students were sampled in this way, as they were all enrolled on the university campus on which the authors lecture. The reasoning behind the use of this kind of sampling was based on Maree and Pietersen's (2007a) assertion that convenient sampling allows for the accommodation of a population which is easily and conveniently available. Due to factors such as absenteeism on the day on which the questionnaires were completed, as well as a few spoiled questionnaires, 124 students eventually participated in the research. After the purpose and associated ethical matters were explained to them, the students gave their consent to complete the questionnaire. These students represented a heterogeneous sample in terms of gender, socio-cultural background and academic performance.

#### **The Research Paradigm, Research Design and Strategy of Inquiry**

Usually, the positivist research paradigm is associated with the quantitative research design. However, it can be stated that the empirical research applicable to this study was embedded in the interpretivist paradigm, since the study was concerned with students' views and opinions. Positivist guidelines, which suggest that data are generated through objective observation and measurement, independent of interferences such as feelings or opinions (Welman, Kruger & Mitchell, 2005), were nevertheless followed. Creswell (2005:39) states that research approached in a quantitative manner "...asks specific, narrow questions, collects numeric data from participants, analyses these numbers using statistics and conducts the inquiry in an unbiased, objective manner." Based on the rationale that it is versatile, efficient and permits the generalisability of research results (McMillan & Schumacher, 2006), a survey as a non-experimental strategy of inquiry was used for data collection purposes.

**Data Collection Instrument**

Guided by the literature study and the purpose of the intended research, the authors prepared a questionnaire, since this type of data collection instrument is generally used “to obtain facts and opinions about a phenomenon from people who are informed on the particular issue” (Delport & Roestenburg, 2011:186). This questionnaire primarily comprised of four-point semantic differential scales (ranking from negative (1) to positive (4)) (cf. McMillan & Schumacher, 2010; Maree & Pietersen, 2007b), to elicit reactions to words or phrases related to students’ views regarding their experiences, the value they attach to them, and the pedagogy used in a compulsory research methods course. Ranking and Likert scale questions were also included in the questionnaire. All the questionnaire items were justified for inclusion in terms of the interpretivist paradigm, which suggests the understanding of a particular phenomenon – which, in the case of this particular research, centres on the understanding of undergraduate students’ views and experiences of a compulsory course in research methods. To meet the requirements of validity, the questionnaire was “audited” several times by the authors so as to ensure content validity (Pietersen & Maree, 2007:217). Reliability of the questionnaire yielded .877 on Cronbach’s alpha.

**Data Collection Process**

The data collection took place during the last lecture period of the 2012 academic year, during which time the questionnaire was disseminated amongst the sampled students for completion. Students were thus re-

quired to recall how they experienced research methods at particular stages throughout the academic year. After obtaining their consent to participate in the research, 25 minutes were granted for completion of the questionnaire. Hereafter, the respondents submitted the completed questionnaires anonymously. The procedures followed to collect the data were akin to what Delport and Roestenburg (2011:189) describe as a “group-administered questionnaire”.

**Data Analysis and Interpretation**

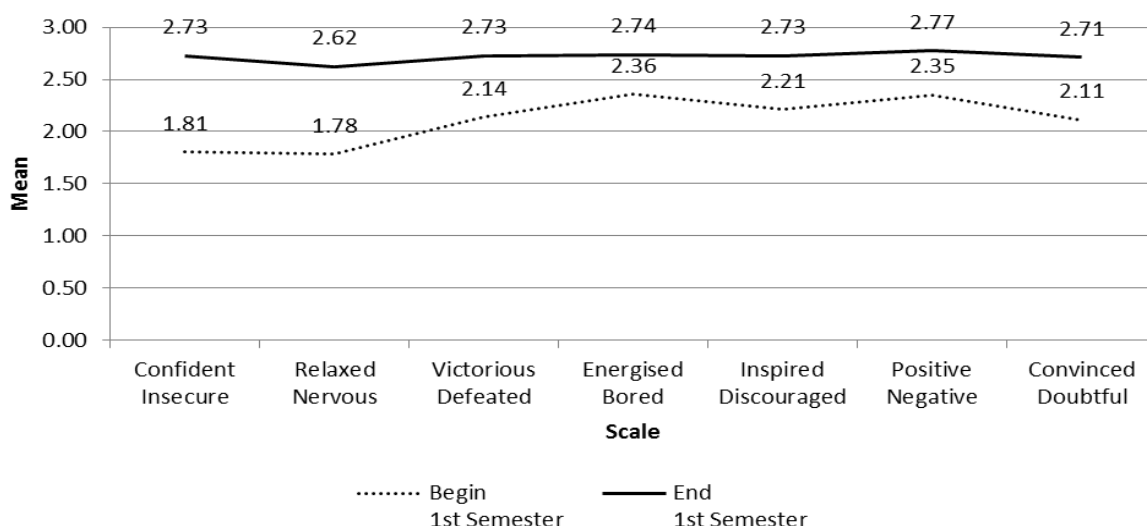
In terms of data analysis and interpretation, the authors were guided by the three elements of the purpose of the study, namely: students’ **experiences** of research methods; the way in which students **value** research methods; and students’ opinions regarding the **pedagogy** used in teaching research methods.

*Students’ experiences of research methods*

Three questions attracted particular interest with regard to students’ experiences of research methods:

- What are the parallels concerning the sampled students’ experiences of research methods between the beginning of Semester 1 and the end of Semester 1?
- What are the parallels concerning the sampled students’ experiences of research methods between the beginning of Semester 2 and the end of Semester 2?
- What are the parallels between the sampled students’ experiences of research methods taking place between the beginning of Semester 1 and the end of Semester 2?

The means reported on these questions range from ‘pessimistic’ to ‘optimistic’ opposites, as shown in Figure 1.



**Figure 1** The parallels concerning the sampled students’ experiences of research methods between the beginning of Semester 1 and the end of Semester 1

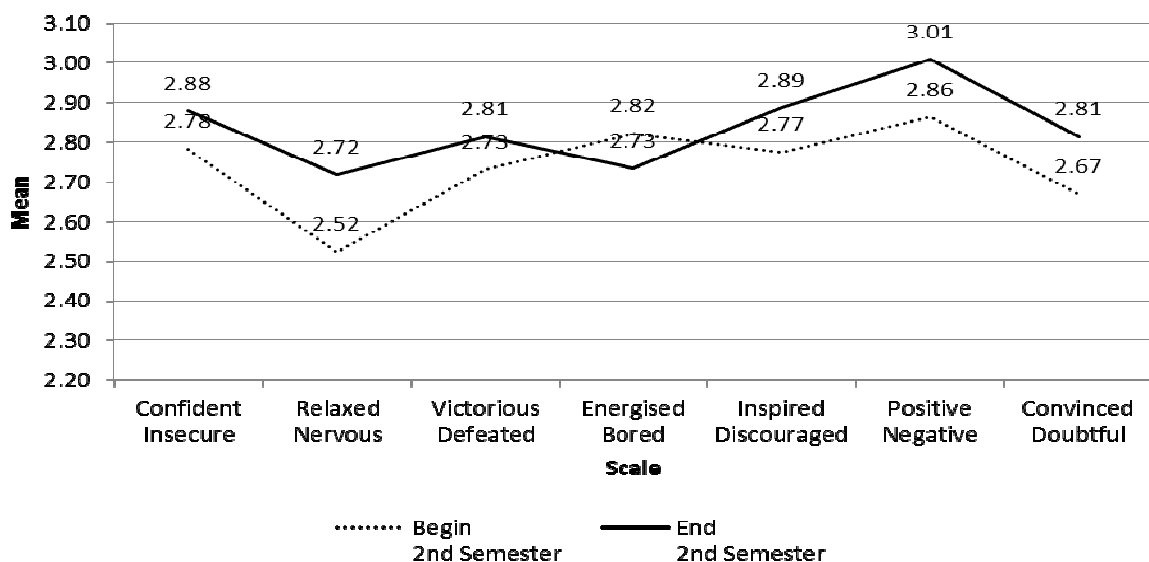
With a mean difference of .92, students indicated that although they entered the course feeling *insecure* at the beginning of the first semester (mean = 1.81), their *confidence* grew considerably between the beginning and the end of the first semester (mean = 2.73). Though to a slightly lesser degree, almost the same tendency is observable between feeling *nervous* (mean = 1.78) and *relaxed* (mean = 2.62) where the mean difference is .84. It is also evident from Figure 1 that the students started the course with moderately high levels of feeling *energised* (mean = 2.36) and *positive* (mean = 2.35), but that these two levels reflect the lowest mean upsurges at the end of the semester (respectively .38 and .42).

As could possibly be expected, the students' initial feelings of *insecurity* and *nervousness* relate to the feelings usually experienced by many students when entering a new course or year of study. In this specific case, the fairly high degree of feelings of *insecurity* and *nervousness* at the beginning of the year may also be attributed to a negative or pessimistic perception of research methods by students. This finding underscores earlier research results in terms of student anxiety towards research methods (cf. Onwuegbuzie, 2000; Onwuegbuzie & Wilson, 2003; Papanastasiou & Zembylas, 2008). On the other hand, the moderately high levels of feeling *energised* and *positive* at the beginning of the year may reflect the students' enthusiasm towards this new venture called 'research methods'. The discovery that most students apparently gained more

*confidence* and felt more *relaxed* towards the end of the semester could be attributed to their understanding and mastering of their work, which is also reflected in the relative mean of 2.73 attached to feeling *victorious* at the end of the first semester. The aforementioned could also explain the reasonable growth in students' *positive* feelings between the beginning and the end of the first semester. Although it is very inspiring that students' levels of feeling *energised* at the end of the first semester increased, the moderately low rise in energy levels between the beginning and end of the first semester could possibly be attributed to student fatigue.

Concerning the parallels between the students' experiences of research methods from the beginning to the end of the second semester, the mean differences between the beginning and the end of the semester of all the mentioned variations in Figure 2, are remarkably low when compared with those of the first semester. The most noteworthy are that students felt more *relaxed* towards the end of the semester (mean difference of .20). Other differences reflect in students' *positive* feelings (.15), their feelings of certainty (*convinced*) (.14) and their level of motivation (*inspired*) (.12).

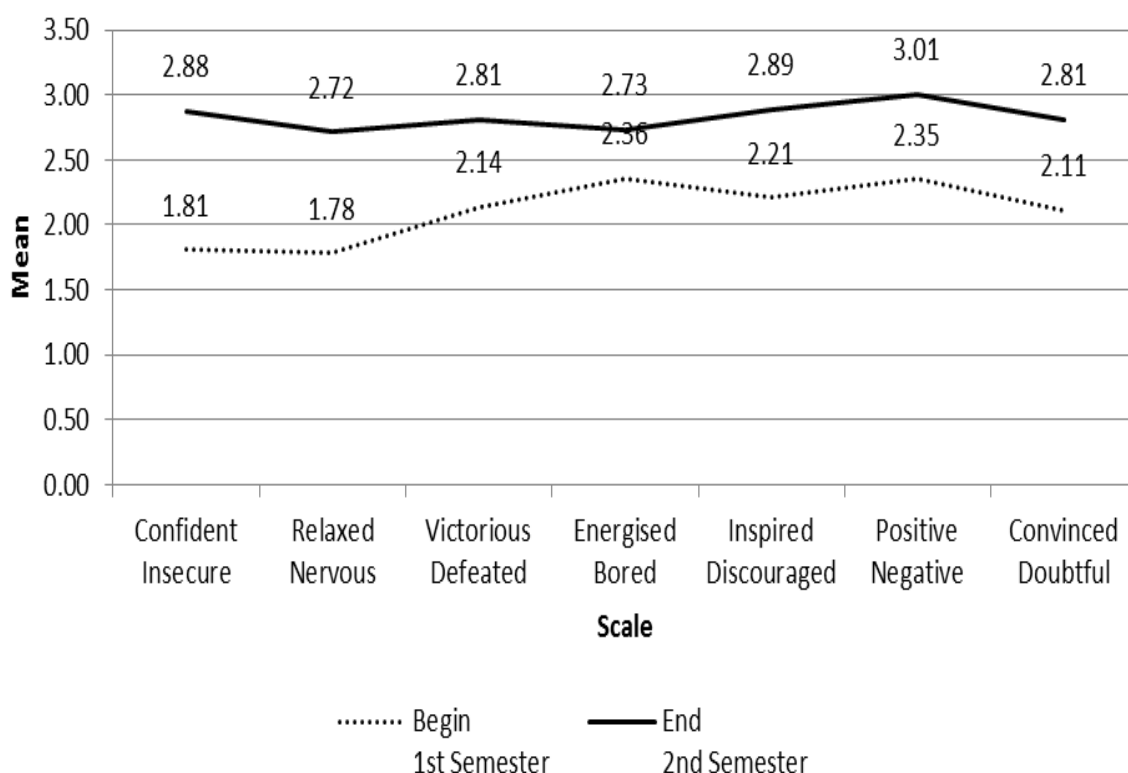
Being more confident, relaxed, victorious, inspired, positive and convinced at the end of the second semester may point to an escalation in students' optimism with regard to research methods, and might be ascribed to the students' opinion that they have satisfactorily mastered the course.



**Figure 2** The parallels concerning the sampled students' experiences of research methods between the beginning of Semester 2 and the end of Semester 2

An image of students' experiences of research methods over a period of one academic year is depicted in Figure 3 below. Worthy of mention is the positive increase in all the mentioned variations, when comparing the means of the beginning of the first semester with those at the end of the second semester on this semantic differential scale. When comparing the mean differences during this time span, the following is notable. The mean difference of feeling *confident* (1.07) is most prevalent, between the beginning of Semester 1 and end of Semester 2.

This is followed by the contrast in feeling *relaxed* which yielded a mean difference of .94 between the beginning of Semester 1 and the end of Semester 2. Mediocre mean differences relate to feeling *convinced* (.70), *inspired* (.68), *victorious* (.67) and *positive* (.66). In both the aforementioned instances, it can be assumed that students' initial anxiety towards research methods was alleviated. When comparing the beginning of Semester 1 with the end of Semester 2, feeling *energised* yielded the lowest mean difference (.37).



**Figure 3** The parallels concerning the sampled students' experiences of research methods between the beginning of Semester 1 and the end of Semester 2

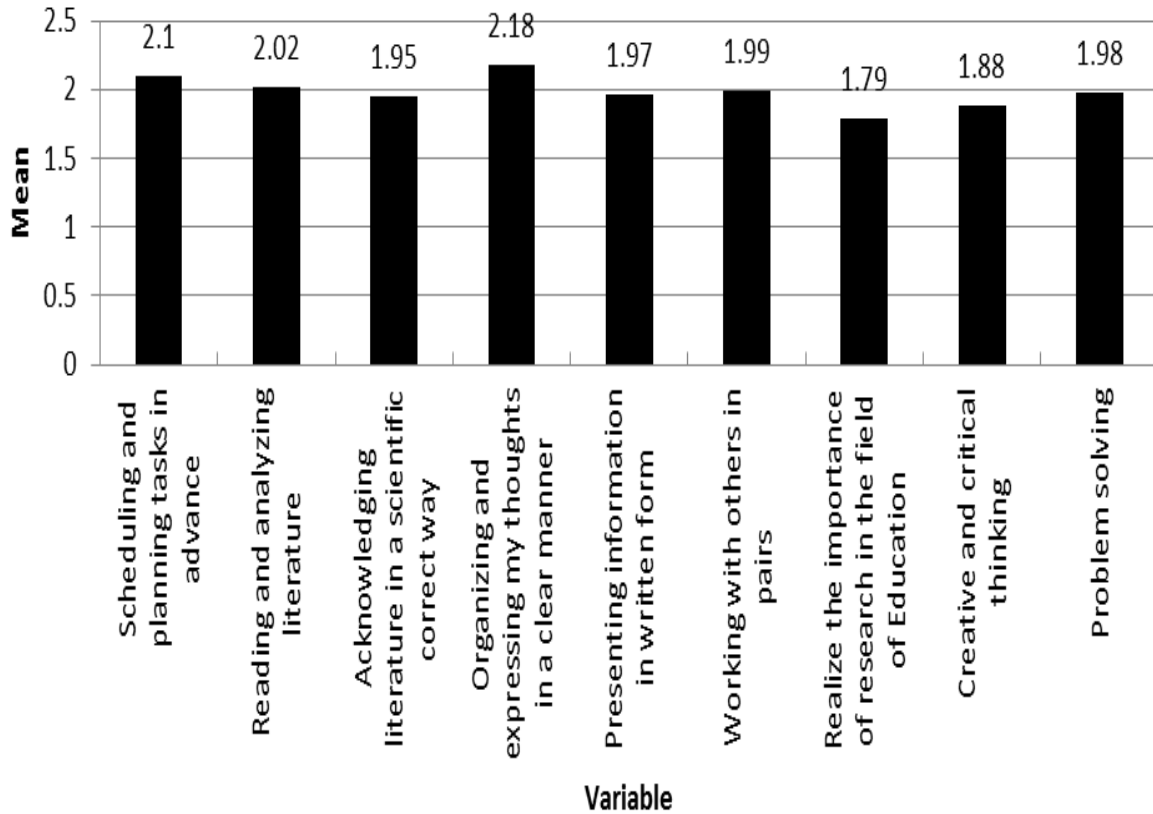
Although the variability in mean differences is acknowledged, it can be deduced from the aforementioned results that the cohort of fourth year B.Ed. students experienced the course in research methods constructively, with a *positive* feeling towards the course (mean = 3.01) at the end of the academic year. Although the literature mention a variety of variables that could determine students' positive feelings towards research methods (cf. Burrows & Baillie, 1997; Lodico et al., 2004; Murtonen & Lehtinen, 2003; Niven et al., 2013; Pan & Tang, 2004; Pfeffer & Rogalin, 2012; Price, 2001; Smith & Sela, 2005; Taylor & Muncer, 2000), instances in this particular study appears to be in contrast with some of the

findings regarding students' attitudes towards research methods cited in earlier studies (cf. Gal & Ginsburg, 1994; Macheski et al., 2008; Sizemore & Lewandowski, 2009). Viewed holistically, substantial growth was observed between the beginning and end of the first semester in all the means (see Figure 1), while a stabilising trend was witnessed when comparing the means of the end of the first semester with those of the beginning of the second semester (see Figures 1 and 2). Except for a slight decrease between the means of *energy* at the end of the second semester (mean = 2.73), as compared to the beginning of this semester (mean = 2.82) (see Figure 2), the means of the rest of the variants ascended. It

thus seems to be the case that the magnitude between the measured differences of the dispositions weakened from semester one to semester two, and that the students' positive experiences towards the course reached a plateau.

#### *How do students value research methods?*

A four-point Likert scale consisting of nine items and ranging from 'very much' to 'not at all' yielded the means, depicted in Figure 4, of how students perceived the value of research methods.



**Figure 4** The perceptions of students regarding the value of research methods

From the data it is evident that the sampled students value research methods mainly for improving their ability to organise and express their thoughts in a clear manner (mean = 2.18), the ability to schedule and plan tasks in advance (mean = 2.10) and the ability to read and analyse literature (mean = 2.02). Working with others in pairs (mean = 1.99), problem solving (mean = 1.98), presenting information in written form (mean = 1.97) and acknowledging literature in a scientific correct way (mean = 1.95), are the skills for which the study of research methods were reported to be slightly less valued. At the end of the spectrum, students felt that research methods were the least valuable for stimulating their creative and critical thinking (mean = 1.88), and for realising the importance of research in the field of education (mean = 1.79).

It thus appears that the improvement of students' general skills required for successful study-

ing and academic performance – such as to organise and express thoughts in a clear manner, the advance scheduling and planning of tasks and reading and analysing literature – benefitted the most from undertaking a course on research methods. The students also realised the possible advantages of working with others in pairs for its potential academic value. Apparently, the students gained less in terms of the specific and perhaps advanced skills required for the sound execution of research, e.g. problem solving, the presentation of information in a written form, acknowledging literature in a sound scientific way and creative and critical thinking. As a result, it could be inferred that although courses in research methods are seen as having the potential to cultivate so-called higher order skills such as problem solving, and creative and critical thinking (cf. Schindler, 2011), the development of these skills is not necessarily guaranteed. It was surprising to discover that the

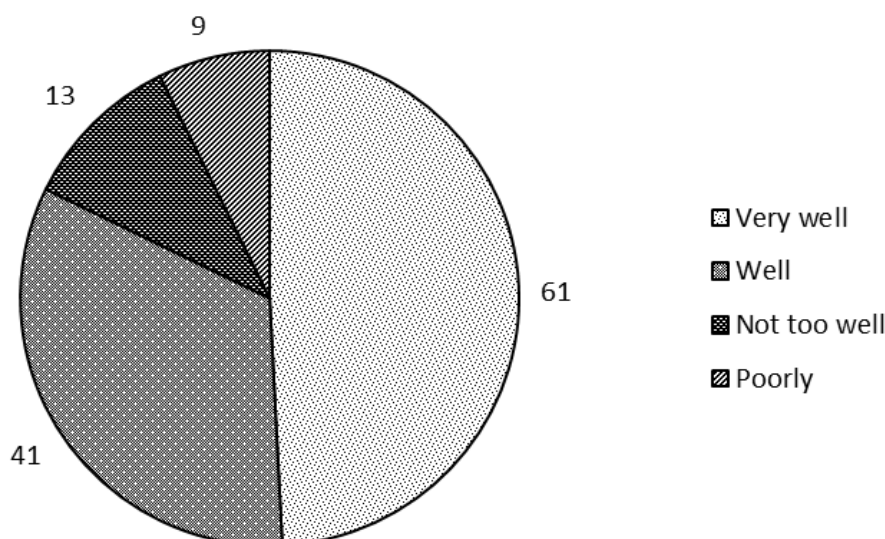


students valued the course in research methods the least for realising the importance of research in the field of education. This unfortunate condition could be attributed to the possibility that undergraduate students do not yet associate research methods with professional development, personal growth or successful classroom practice (cf. Gitlin et al., 1999; Kotsopoulos et al., 2012; Reis-Jorge, 2005; Waite & Davis, 2006).

*Students' opinions regarding the pedagogy used in teaching research methods*

Being expected to choose their own partners for working in pairs to complete structured exercises on the theory of research methods, and to plan, prepare and submit a research proposal, students were required to indicate, on a four-point Likert scale, how

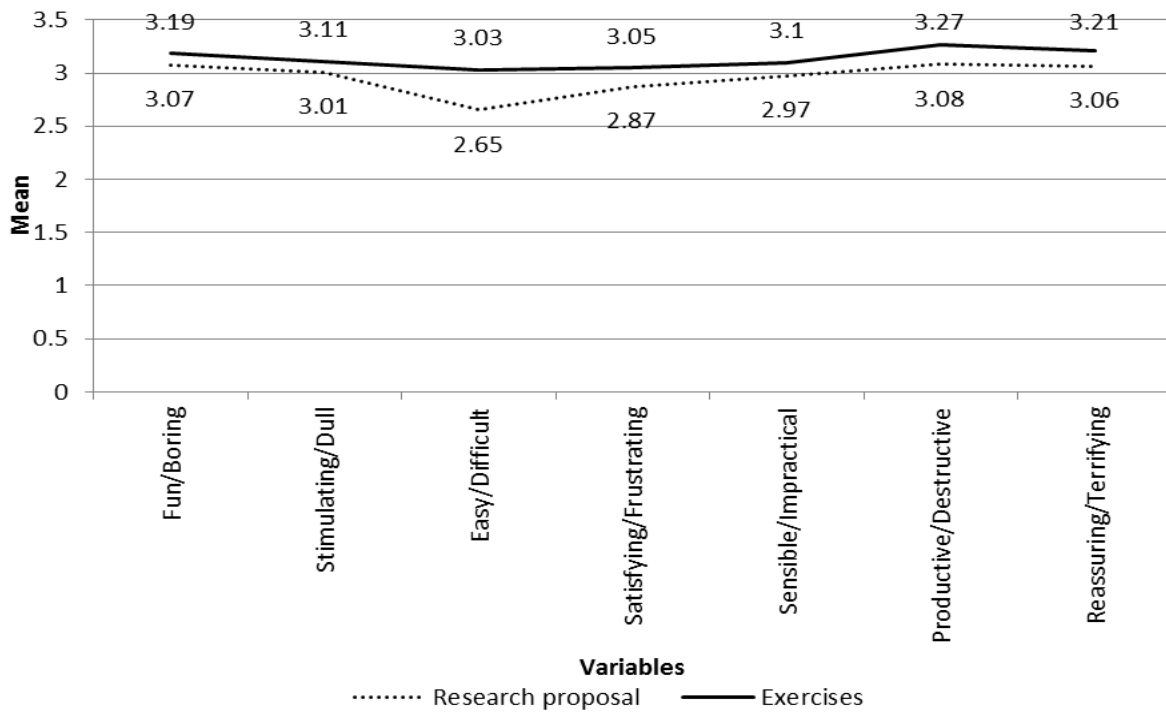
well their pair worked together. According to the information illustrated in Figure 5, the majority of the students expressed their satisfaction about how the pairs in which they were working operated. Sixty-one students (49.2%) were of the opinion that their pair worked 'very well' together, while 41 (33%) indicated that their pair worked 'well' together. Only 13 (10.5%) said that their pair did not work 'too well' together and 9 (7.3%) mentioned that the pair in which they were working, worked 'poorly' together. From this information it can be concluded that the majority of students found the pairs in which they worked functional, and that both notions of 'constructivism through social interaction' and 'communities of practice', were realised to a great extent (cf. Lave & Wenger, 1991; Vygotsky, 1978).



**Figure 5** Students' opinion regarding the operation of their pairs

When students were asked about their experiences of working in pairs on the exercises, when compared to working in pairs on the research proposal, their reactions were similar in both instances. Figure 6 illuminates that the means of working in pairs on the exercises were slightly higher in all cases, when compared to working in pairs on the proposal. However, students found it marginally more difficult to work in pairs on the research proposal (mean= 2.65), while they regarded their productivity when working in pairs on the exercises

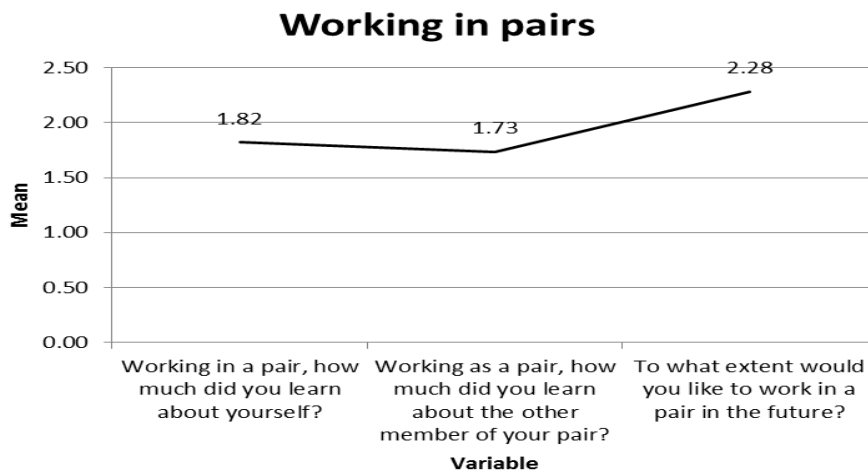
as the highest (mean= 3.27). This could be ascribed to the fact that the completion of the exercises requires less learner autonomy than what is expected with the completion of the proposal. Nevertheless, it is encouraging that students regarded working in pairs as favourable, especially when considering that the authors experimented with this pedagogical approach in order to operationalise the notions of constructivism and communities of practice by also attempting to improve students' performance, as well as to arouse their interest in research methods.



**Figure 6** Students’ experiences of working in pairs on the exercises compared to working in pairs on the research proposal

Inquiring about the possible benefits of working in pairs, the sampled students indicated that they would like to work in pairs in future (mean = 2.28). This resonates with their optimism assigned to most of the factors related to working in pairs, as mentioned in Figures 5 and 6. The fact that students were permitted to choose their own partners to work in pairs, suggests the alleviation of the problems associated with active learning (cf. Brooks & Am-

mons, 2003; Scott-Ladd & Chan, 2008) to some degree. However, it is quite intriguing to note that students did not learn a lot about their partners during pair work (mean = 1.73) and only a little more about themselves (mean = 1.82), as illustrated in Figure 7. Perhaps this is indicative of the fact that the students may have been more task than person-oriented during their pair work sessions.



**Figure 7** Students’ opinions about the possible benefits of working in pairs

Finally, in terms of pedagogy, students were required to rank order seven listed factors that they would probably do differently if required to repeat the same research methods course by working in pairs (see Figure 8). With the highest means representing those factors which students reported that they would definitely approach differently, the mean responses indicated that they would seek more guidance from their fellow students (4.95), do a better division of the work (4.93), and that they will

have more meetings with their partners (4.91). It is significant that these results echo the importance students attach to the advance scheduling and planning of tasks as described in Figure 4. In comparison with the aforementioned factors, it is noteworthy that the students suggested that they would meet less frequently with the lecturer (mean =4.59), which indicates that students think they are able to make the transition to carry out their learning in communities of practice.

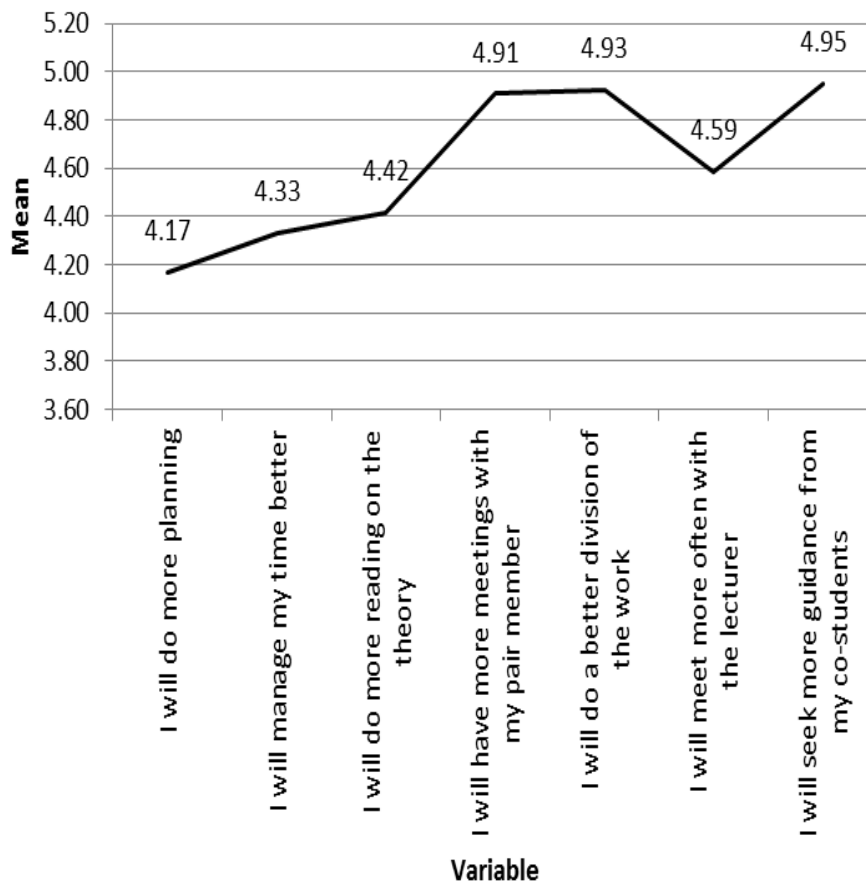


Figure 8 Rank order of factors that students will do differently in a future research methods course

**Conclusion**

Although it is acknowledged that the timing of the questionnaire could have impacted on the trustworthiness of the sampled students’ responses in terms of the research question stated at the onset of this paper, an extrapolation of the research results reveals the ensuing findings and suggested ideas for further research.

In terms of students’ experiences of research methods, the majority of the sampled group initially sensed some degree of anxiety, reportedly feeling insecurity and nervousness towards research me-

thods. However, towards the completion of the course, an escalation of their confidence and optimism concerning research methods was revealed. The apparent interrelatedness between and interdependence of the positive variants or dispositions represented on the semantic differential scale used in this research, are noticeable. This being the case, the degree of reciprocal influence of these dispositions on student performance could further be explored. Moreover, experiences of growth in confidence after feeling somewhat insecure at the beginning of the research methods course, probably rubbed off on the

other dispositions to a greater or lesser extent. The impact of this disposition (confidence) on students' academic performance also warrants supplementary research, as this could enrich lecturers' teaching practices.

With reference to the value the sampled students attach to research methods, it is regrettable that the research results are not promising in terms of stimulating creative and critical thinking, or in promoting the importance of educational research among undergraduate students exposed to a course in research methods. However, 'soft skills' required for conducting successful research (scheduling and planning of tasks, organising and expressing thoughts in a clear manner, and reading and analysing literature), are apparently cultivated. It is argued that the ostensible dearth of existing literature on the matter warrants rigorous research on undergraduate students' perceptions regarding the value of a course in research methods. Such research could enrich the teaching, learning and assessment of such a course. As a consequence, it could also reinforce the status of research methods at an undergraduate level.

Considering the enacted pedagogy, a common positive reaction from the sampled students regarding active learning in the form of 'working-in-pairs' is evident. Although the research did not explore the possible reasons behind students' positive attitudes towards working in pairs, the issue of "communities of practice" in terms of language proficiency comes to mind. Especially in countries such as South Africa, where the persistence of language diversity in learning environments is a critical issue, the contribution of active learning in terms of enriching learners' language competence for improving general learner performance, could be investigated. In this regard, the terminology peculiar to the study of research methods adds to the teaching and learning language conundrum.

Finally, the research described in this paper focused on undergraduate education students by considering how their attitudes, learning and achievement in the field of research could possibly shape future quality education research outputs. The research offers a new approach to dealing with, among other aspects, the student attitudes and interest that can impact negatively on the success of a course in research methods. Moreover, the active approach utilised during the course provides the students with authentic experiences related to research, which can be regarded as a collaborative activity. However, the limitations of the research in terms of developing higher-order thinking skills such as problem-solving, critical thinking and reflective skills (meta-cognition) for planning and monitoring work, create an awareness of adaptations that have to be made to the active

learning approach so as to purposefully provide opportunities to nurture higher order thinking skills. In addition, it should be pointed out that the research question, the reported findings and the suggested areas for further research could also be made applicable to subject areas other than Education, which could stimulate interdisciplinary engagement on the topic of undergraduate research methods, as well as the cross-pollination of best practices.

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