A Mixed Method Approach Enabling the Triangulation Technique: Case Study in Vietnam

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Received: June 18, 2015 Accepted: June 29, 2015 Online Published: July 16, 2015

doi:10.5430/wjss.v2n2p1 URL: http://dx.doi.org/10.5430/wjss.v2n2p1

Abstract

An exploratory study was conducted to investigate the perceptions of various key stakeholders about the current vocational education and training (VET) sector in Vietnam using three methods. The quantitative method adopted was a data gathering questionnaire aimed to measure students' perceptions of the VET sector and identify factors that impact students' intentions in enrolling and completing VET programs in Vietnam. The qualitative method was then used to explore other views about the VET sector from the students' parents using the open-ended interviews. The third approach used a nominal group technique to investigate other key stakeholders' perceptions of Vietnam's VET sector. Through triangulation, the reliable findings of the research indicated that the "real" issue impacting the VET sector was the relationship between VET providers and industries. This should be considered and researched carefully in the design of a VET curriculum. In addition, this study revealed that a web of influences was created which impacted significantly in both positive and negative ways on the students' perception of the VET sector.

Keywords: Research design, triangulation, Vietnamese vocational education and training

1. Introduction

This paper details the methodology of an exploratory study carried out in Vietnam in 2014-2015 on the perceptions of key stakeholders of the vocational education and training (VET) sector. The study was conducted in the context of the Vietnamese Government's recent efforts to promote training in the vocational education sector as an alternative to university studies. This is evidenced in the funding records for the sector which has demonstrated a tenfold increase, from 49 million USD to 490 million USD, in the period 2001 to 2011. The expectations of Government are that the funding will encourage an increased number of students to enrol in the VET sector which will, in turn, lead to a greater number of skilled, with the expectation of an increase from 23.5 million in 2015 to 33.4 million by 2020.

However, secondary student enrolments in long-term VET programs, during the period of increased funding, actually decreased. In 2010-2011, 80.36% of lower secondary students continued into mainstream education and enrolled in high school programs compared to only 1.88% of the graduating students who opted for enrolment in vocational education and technical education schools (GDVT, 2011). Statistics for the academic year 2011-2012 were equally damning with 61.26% of students graduating from upper secondary schools continuing to higher education and only 10% enrolling in technical and vocational education (GDVT, 2011). The figures for students currently enrolled in vocational programs reveal further disengagement with the sector. In the academic year 2008-2011, there was an unacceptably high student dropout rate of 15% (equivalent to 21,782 students) recorded at vocational secondary schools and vocational colleges (GDVT, 2011).

These statistics raise question about the current image of VET in increasing student enrolments and sustaining robust retention rates. To date there has been limited research on the topic. The present study adds to the body of research on the topic while providing useful insights into the management of VET providers in an effort to increase secondary school enrolments and retain currently enrolled vocational students. The results will make a valuable contribution to relevant ministries, agencies, organizations, administrators and future VET policy makers. In order to address these gaps, four research questions were developed to attempt to identify what may be the cause for discrepancies in public

perception about the VET sector in Vietnam.

1. What are lower and upper secondary school students, and current vocational students' perception of the VET image?

2. To what extent does VET's image relate to students' loyalty to the VET programs?

3. To what extent does the image of VET influence lower secondary, upper secondary, and current vocational students' perceptions of and intentions to enrol and complete the VET programs?

4. What do key stakeholders consider to be the factors impacting on the quality of VET programs?

This study used quantitative, qualitative, and semi-quantitative methods as three major approaches to explore the perceptions of key stakeholders towards the VET sector, and includes two main sections. The first section provides a rationale of the research design adopted in this research. The second section provides descriptive details of the three approaches comprising of the survey questionnaire, open-ended interviews, and the nominal group technique.

2. Methodology

To gain a greater insight into the perceptions of various key stakeholders towards the VET sector, the researcher applied a mixed-method approach, which comprises of three methods to collect data. The quantitative method used a survey questionnaire to explore students' perceptions. The qualitative method involved open-ended interviews to explore parental perspectives on the sector. The last method was the nominal group technique to unpack the perceptions of six key stakeholders who have a clear understanding of, and close relationship with the VET sector. The combination of the three methods contributed in the triangulation of the both methodological triangulation and data triangulation to strengthen methodology and provide clear evidence (Lincoln & Guba, 2000). According to Denzin (2010), methodological triangulation involves multiple qualitative and/or quantitative methods for investigating a certain issue, while data triangulation uses dissimilar sources of data or different data from the same source to examine the same object.

2.1 The Reason Using the Mixed Method Approach

The mixed method system does not have universal support amongst scholars, and some claim that the two methods cannot be merged (Smith & Heshusius, 1986). They argue that it provides an insight into the research topic from different perspectives and that the combination of methodologies "can provide particularly rich and robust data" (Australian National Health and Medical Research Council, 2005). Sale, Lohfeld, and Brazil (2002) explained that there were two significant benefits from using mixed methods. First, it provides cross validation by triangulations. Second, it gains complementary results by using the strengths of one method to improve the other. According to Teddlie and Tashakkori (2003), the use of a mixed methods approach is particularly valuable in complex educational and sociological research where the researcher needs to address multiple questions (Newman, Ridenour, Newman, & DeMarco, 2003).

Examples of mixed method research involving studies with governance arrangements include:

• A 1998 study, reported by Nir (2002), of the Israeli education system, the purpose of which was to gauge the impact of school-based management on teacher commitment. This research combined quantitative data from questionnaires with qualitative information from interviews.

• The research of Walker (2002) into school-based management in New Jersey, in which she used questionnaires and focus-group discussions as the basis of her mixed method investigation.

• Timperley and Robinson (2003) studied partnership as an intervention strategy in self-managing schools in New Zealand and combined data from questionnaires, interviews, and observations.

2.2 Research Design

The purpose of this study was to explore the perceptions of various key stakeholders towards the vocational education training sector in Vietnam. The mixed methods approach, which uses triangulation to strengthen and ensure accuracy of data (Lincoln & Guba, 2000) was applied. According to Denzin (1978), triangulation is a process in which several methods are used in the study of one phenomenon, and might be used in four basic ways (1) data triangulation, (2) researcher triangulation, (3) theory triangulation and (4) methodological triangulation. In this study, involved methodological triangulation because one phenomenon was researched, namely, the perceptions of key stakeholders of the VET sector. The advantage of methodological triangulation is that the weaknesses of one method can be compensated for by the strengths of the other (Malterud, 2001; Thurmond, 2001). Additionally, the results

from three methods, namely, a quantitative survey questionnaire, open-ended interviews, and the nominal group technique were compared to see whether similar results emerged. If the conclusions from each of the methods were the same, then validity was established (Mays & Pope, 2000). The data triangulation technique was used in this study to improve the accuracy of data.

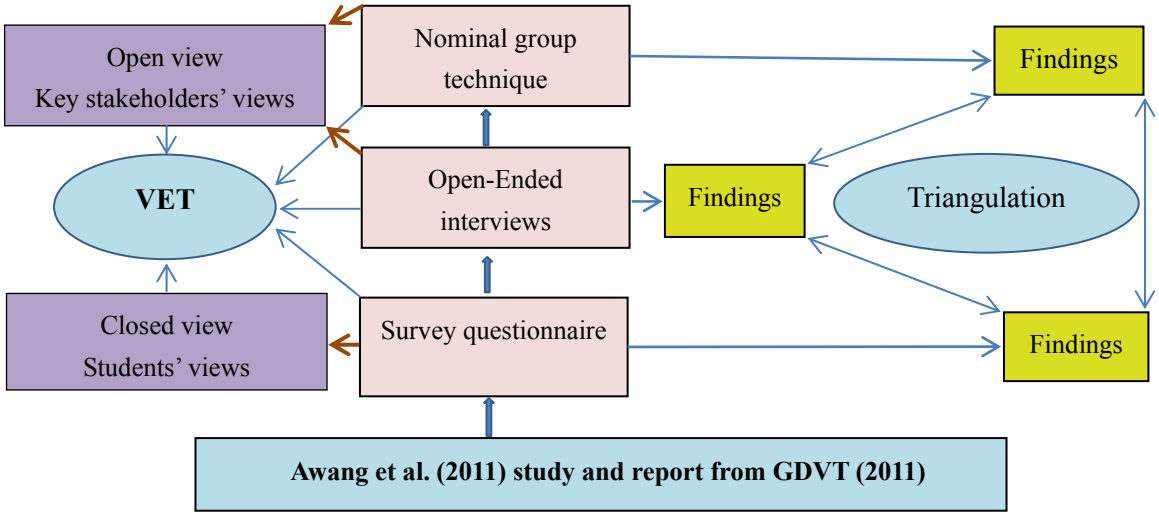

Figure 1. Research design framework

Figure 1 provides an overview of the research design framework used in this study to explore key stakeholders' perceptions of the VET sector in Vietnam. It included three methods (in pink in Fig. 1). First, three perspectives of lower, upper secondary, and current vocational students were obtained using the survey questionnaire approach which was developed and modified based on the Awang (2011) study, and the study from the General Directorate of Vocational Training (2011). The two studies mentioned above were the foundation for the development of the survey questionnaire and the research design in this study. Second, the open-ended interviews method explored the parental perspectives of the VET sector. It was designed based on the dimensions of the VET image at the survey questionnaire approach. Last, the opinions of other key stakeholders of the VET sector were revealed by the nominal group technique.

The three methods were grouped by closed view and open view (in purple in Fig. 1) corresponding with the quantitative and qualitative views of the participants in this study. The closed views described the perceptions of students towards the VET sector through the survey questionnaire. The open views comprised of two methods; open-ended interviews explored the perception of parents of the VET sector, and the nominal group technique disclosed the key stakeholders' perception of the VET sector.

Data collected from participant groups from the three methods (in orange in Fig. 1) were compared, and then were triangulated in the interpretation phase of the study.

2.3 Methodology Justification

To portray the whole picture of the VET system with the views of multiple participants, in this study, the author applied the mixed methods approach by using a survey questionnaire, followed by open-ended interviews, and the nominal group technique to verify data.

With the survey questionnaire approach, there is opportunity to investigate the perceptions of students of the VET programs. The reason these students were the target of the research was because they are the ones who make the final decision to enrol, continue their studies and complete the VET programs. One of the biggest advantages of this method is that it is the most efficient means of gathering information from a large sample in a limited period of time. In the case of this research, the survey provided a convenient means of identifying and categorising ethnographic details, personality traits, perceptions and loyalty of three groups of students, namely, lower, upper secondary, and current vocational students (Johnson, 1994).

With the open-ended interview method, there is opportunity for exploration of parental perspectives of the VET sector as well. In the Vietnamese context, parents have been seen as the most important people in influencing the career choice of their children (Dang, 2015). This method is one of the most important techniques for collecting data

because it enables the researcher to delve deeply into the opinions and perceptions of the interviewee and elicit much valuable information (Creswell, 2002). Thus, a broader and deeper insight into the perceptions of parents of the VET system was obtained.

With the nominal group technique approach, there is an opportunity to unpack the opinions of other key stakeholders of the VET sector. This study, six key stakeholders were formally invited based on their roles, the close relationship and a clear understanding on the VET sector. The roles of two policy makers from vocational education training sector and technical education training field made policies and generated the mechanisms. The roles of principals of secondary schools helped students in advices and guiding career choice in the future. The appearance of manager of industry at the workshop contributed the ideas on the roles of building up curriculum, evaluations and recruited VET graduates. The attendance of VET lecturer provided his or her understanding and experiences insights the VET sector. The primary advantage to use this approach was all participants having equal voice to contribute ideas, to minimize the domination of the process by more confident or outspoken individuals and to get the results quickly at the end of the workshop (Vella, Goldfrad, Rowan, Bion & Black, 2000).

3. The Details of the Three Approaches

3.1 Survey Questionnaire Approach

3.1.1 Development and Design of the Questionnaire

To explore the perceptions of the three student groups of the VET sector (in this study, the VET sector or VET image was quantified by dimensions), and measure the relationship and impact of the image of VET on the students' loyalty (this was also quantified by dimensions) to VET programs, a model of the image of VET and student's loyalty to VET was developed (see Fig. 2) based on data from a variety of sources. The principle source for the image dimensions represented for the VET sector was the survey instrument deployed by Awang et al. (2011) to investigate students' perceptions and loyalty to the VET programs in Malaysia. This was combined with the 12 principle dimensions used to describe the VET system in Vietnam (GDVT, 2011). The 12 principle dimensions that quantify and describe the VET system in Vietnam were used to provide cultural points of reference that could be blended into the modified scale.

In the final model, the seven dimensions that explained the image of VET were: entry requirements, facility and equipment, teachers' ability, recognition of qualification, student career and job potential, quality of curriculum, and social value and soft skills.

The measure of student loyalty was again based on that devised by Awang et al. (2011) and the GDVT (2011), and was modified for use taking into account the Vietnamese context and culture. Four subjective measures of students' loyalty to the VET sector were considered by asking students' intentions on: further study, field of interest, career choice, and parental encouragement. The model was set answering three first research questions.

The three main parts of the questionnaire were the main instruments used to explore students' perceptions, and measure the relationship and impact between VET's image and students' loyalty to the VET sector. The first part was designed to collect demographic information using 13 items. The second part examined students' perception of the VET system which was quantified by seven dimensions. The first dimension was entry requirements and included 6 items. The second dimension was facility and equipment comprising of five items. The third dimension was teachers' ability covering three items. The fourth dimension described the recognition of VET qualification and consisted of seven items. The fifth dimension was student career and job potential with seven items. The sixth dimension was quality of curriculum including eight items, and the last dimension was social value and soft skills comprising of nine items. The total number of items or statements in this part of the questionnaire was 45. The third part contained 19 items or statements describing students' beliefs about VET sector and was used to determine their loyalty to the VET. It was also quantified by 4 dimensions depicting the students' intention to pursue and complete the VET programs. The first dimension was further study including three items. The second dimension was career choice comprising of five items. The third dimension was field of interest containing eight items, and the last dimension was parental encouragement covering three items (Fig. 2).

The survey questionnaire utilised a five-point Likert scale measuring the perception of three groups of students on the image of VET and the student's loyalty to VET based on responses to five categories (1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree). Students were asked to provide the most appropriate answer to a set of 77 questions. The seven dimensions making up the image of VET (independent variable) were measured using 45 questions that sought students' evaluation based on their experience and knowledge of the sector. The four

dimensions measuring students' loyalty (dependent variable) were measured using 19 questions asking their intentions to enrol and complete the VET programs.

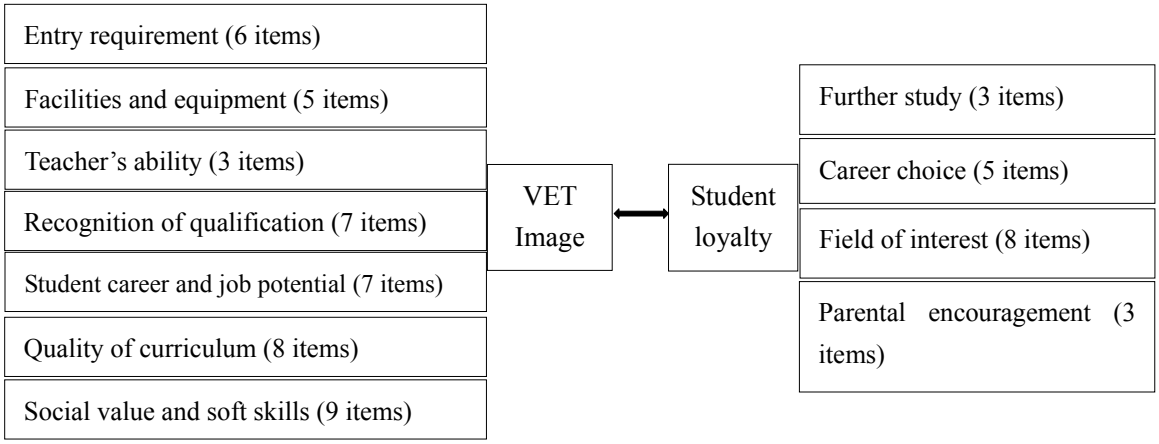

Figure 2. Model of the VET image and student loyalty to the VET programs

3.1.2 Sample and Procedure

This study used a survey approach to collect data from lower secondary, upper secondary and current vocational students from across both the Northern and Southern regions of Vietnam. Six provinces were purposively selected based on the researcher's experiences of Vietnam. In the Northern region the provinces were: NamDinh, NinhBinh, and HaiDuong. In the Southern region the provinces were: BinhPhuoc, DongNai and VungTau. The distance between data collection points from each province was approximately 100 km.

In each province, six schools (2 lower secondary, 2 upper secondary schools and 2 current vocational education training providers) were then randomly selected and approached to participate in the study. In each school, 25 students were chosen to participate in the survey using a systematic selection technique applied to the class roll or the students' checklist. Beginning at student number one, every third student on the list was selected until the 25th student was reached. In each province, 6 schools were sampled and a total of 150 surveys gathered. A total of 450 participants were recruited from both the Northern and Southern regions providing 900 data points.

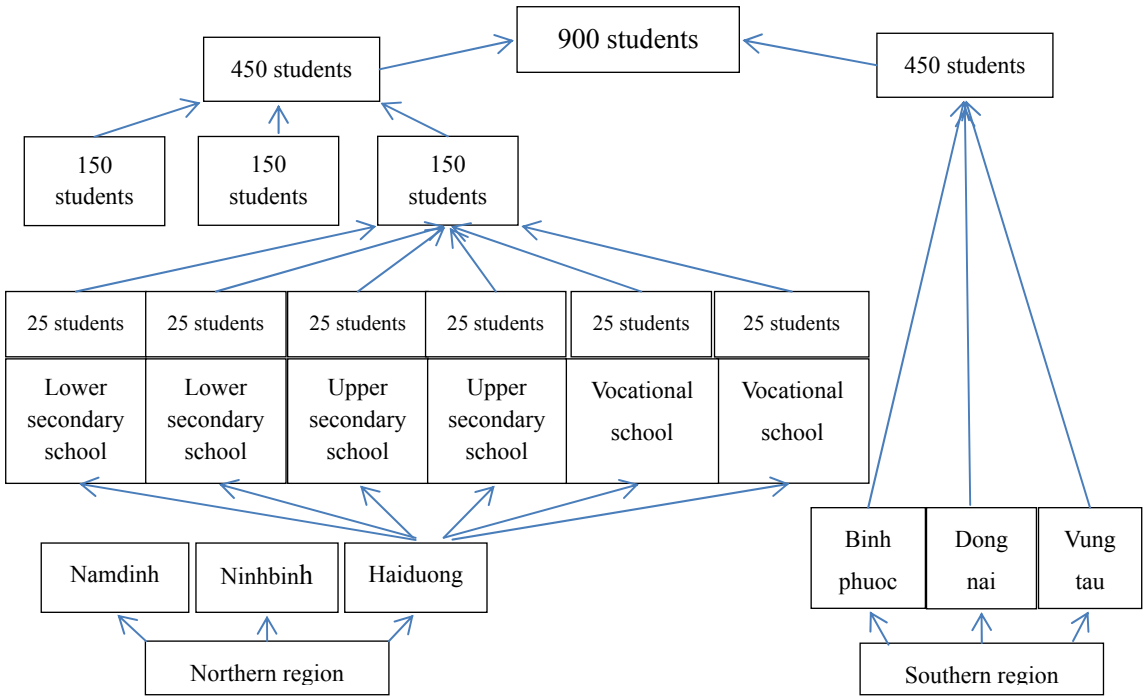

Figure 3. The process of participant selection

It should be noted that at the end of each survey, the researcher checked the students' responses. Students who had not fully completed the survey were given more time to finish. If someone selected from the list did not want to take the survey, then the researcher invited the next student on the list based on the systematic selection process mentioned above. This ensures that the target final sample size of 900 completed surveys was reached. Figure 3 describes the process for selecting students to complete the survey questionnaire.

3.1.3 Analysis of the Quantitative Data

A total of 900 survey questionnaires were distributed and all were returned completed. The data were coded and analysed using SPSS software version 19. To answer the three first research questions, three main data analysis techniques were applied. First, in research question number 1, a means analysis technique was used to determine the students' thoughts, evaluations and perceptions of VET's image and their loyalty to the VET sector. The mean score from 1.00 – 1.80 was strongly disagree, 1.81 – 2.60 disagree, 2.61 – 3.40 neutral, 3.41 – 4.20 agree and 4.21 – 5.00 strongly agree. In the second research question, the correlation analyses were conducted to examine the relationship between the VET's image and students' loyalty to the VET programs. Finally, in research question number 3, regression analyses, based on the findings from the correlation studies, were conducted to find out the factors impacting on the students' intention to pursue and complete the VET programs.

3.2 Open-ended Interview Questions Approach

3.2.1 Designing Open-ended Interview Questions

The purpose of the study is to explore the perceptions of key stakeholders of the VET sector. The survey questionnaire approach measured students' perceptions. However, this is simply an artificial creation by the researcher, as it is asking only for a limited amount of information without explanation (University of Leicester, 2009). Therefore, open-ended interviews were included as an additional approach to overcome the limitations of the survey questionnaire. One of the advantages of this approach is that it generates large amounts of data, thus providing a deeper and broader understanding of one phenomenon (Denzin, 2010). Additionally, open-ended interviews allow the respondent to express an opinion without being influenced by the researcher (Foddy, 1993).

The set of open-ended interview questions was designed based on the dimensions that represented the VET image in the previous quantitative phase. In the quantitative phase, the VET sector was quantified by seven dimensions namely: (1) entry requirements; (2) facility and equipment; (3) teachers' ability; (4) recognition of qualification; (5) student career and job potential; (6) quality of curriculum, and (7) social value and soft skills. The purpose of this design was to provide the interviewed parents with a wide spectrum of features of the VET sector in order to explore their perceptions more broadly. The reason parents were invited to participate the open-ended was that parents are, in the Vietnamese context, seen as the most important people in guiding and financially supporting the career choice and further study of their children (Dang, 2015). There were two primary considerations in selecting open-ended interview questions as the means of data collection in this study. First, the set of questions focused on only one topic (the image of VET) and could be prepared in advance (Denzin, 2010). Second, open-ended questions allowed participants the freedom to express their views in their own words and in their own time, and in a place of their choosing (Kendall & Kendall, 2002). Figure 4 depicts how the six open-ended interview questions were developed.

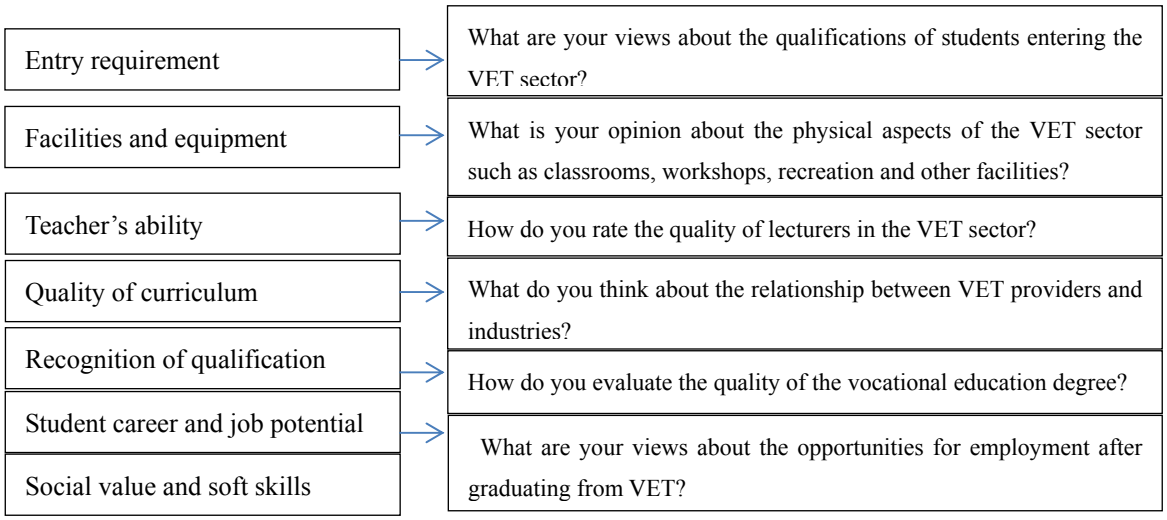

Figure 4. Open-ended interview question development

3.2.2 Sampling

The goal was to meet a quota of 50 parents to participate the open-ended interview questions. These parents had children enrolled in year 9 or year 12 or in vocational schools in the previous phase (quantitative survey questionnaire). They were formally invited to answer the open-ended interview questions. However, only 32 parents were happy to respond to all six open-ended interview questions; 18 parents came from the North, and 14 parents were from the South.

3.2.3 Procedure and Data Analysis

Collecting and recording data from open-ended questions can be done in various ways. The method employed in the present study was to prepare a paper-based form which listed all six open-ended questions for parents to answer and complete. The principal advantage of this strategy is that it allows plenty of time for parents to answer the questions. However, lack of opportunity to observe the feelings of parents about the topics and further explanation of the questions are acknowledged limitations (Kendall & Kendall, 2002).

The completed forms were collected two weeks after distribution and were translated immediately into English. Data pertaining to each question were entered into separate Excel spreadsheets. A thematic analytical framework was applied to analyse data in line with the inductive approach. An inductive approach is used in qualitative research to augment the understanding of complex data using summary themes or categories from the raw data (Thomas, 2006). It should be noted that the parents' answers in the following analysis reflect the actual transcripts as closely as possible, with minor editorial changes to make them more readable.

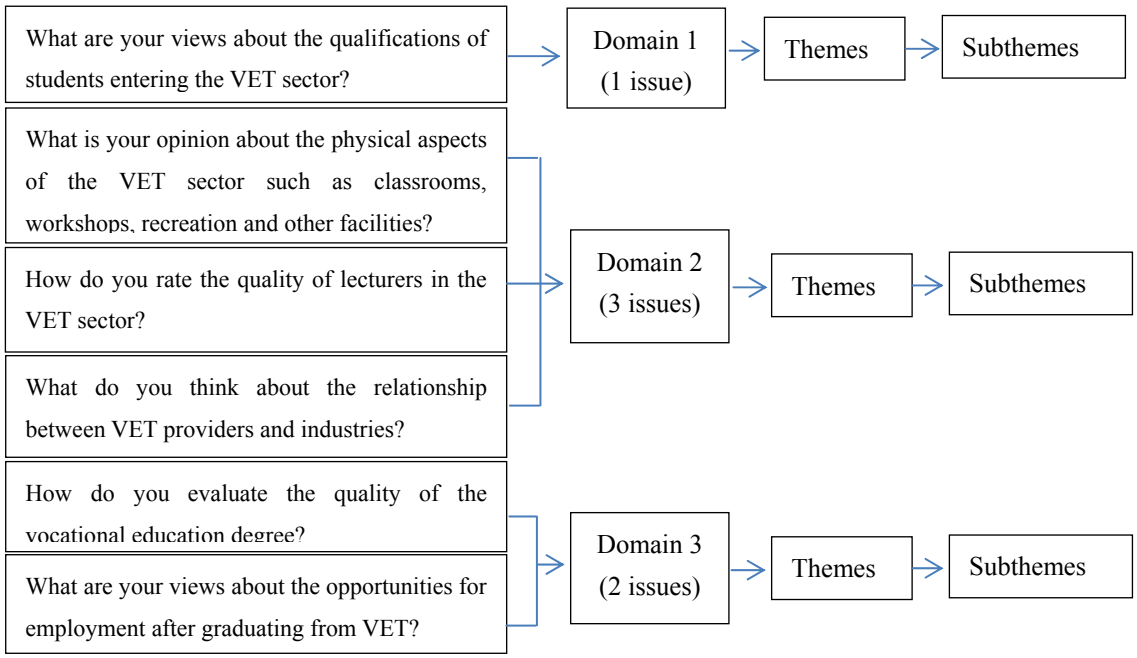

Figure 5. Data analysis process

The responses from the six open-ended questions were grouped purposively into three domains to explain the viewpoints of parents concerning VET sector (Fig. 5). In each domain, there were issues describing the detailed aspects of the VET sector. According to Ryan (2003), there are twelve techniques used to create themes and sub-themes. In this study, three techniques, namely (1) word repetitions, (2) key words in context, and (3) similarities and differences were applied to determine the common emerging themes in each issue. The next step was to identify, through data analysis, sub-themes that linked the research findings and the research questions. Data were compiled by gathering them in the themes and categories to understand the meaning of a phenomenon.

3.3 Nominal Group Technique Approach

3.3.1 Definition

Nominal (meaning in name only) Group Technique (NGT) is a structured variation of a small-group discussion to

reach consensus (Van de Ven & Delbecq, 1971). Originally, the NGT was introduced by Van de Ven and Delbecq (1971) as a tool to help disadvantaged citizens in community settings. The technique includes two main stages, namely, the focus group discussion, and the voting phase. It produces semi-quantitative data and its format is used to promote meaningful, interpersonal disclosures among participants by gathering equally weighted responses. NGT evaluation tends to offer valid representation of group views and is well suited to group evaluation activities (Pokorny & Lyle, 1988). The technique has been widely applied in health, social services, education, and government organisations. The contributors participating in the nominal group technique approach can be whole cohorts or representative groups of participants.

3.3.2 Development

Since its original development, researchers have modified and adapted the process of the NGT, but basic tenets remain central to the NGT process which comprises of two core stages (1) identification of the problems by discussion and (2) voting to make decisions quickly. NGT requires direct participant involvement, in a way that is non-hierarchical, and where all participants have an equal voice and all responses to the posed question have equal validity (Harvey & Holmes, 2012). The generation of the responses to the posed question takes place in silence, with no conferring with other participants, nor seeking elucidation or clarification from the researcher. This silent approach to ideas generation enables participants to develop their own thoughts and ideas, without interference or pressure from others, lessening group dynamics that may be unhelpful or undermining to the overall process (McMurray, 1994). Valuing of participants' individual contributions is enhanced by the fact that through the NGT process, the collection of data, and the analysis following ranking of responses, all participants remain anonymous (Steward, 2001), thus allowing all involved to be heard, regardless of their position held outside of the participant group.

3.3.3 Participants

There has been debate as to what constitutes the optimal size of group for NGT. Van de Ven and Delbecq (1971) suggested that NGT groups should be made up of no more than five to nine participants, but that large groups (9 − >200) could be accommodated within this process whereas, Horton (1980) identified his groups as ranging from seven to ten individuals and Steward (2001), in her work with Occupational Therapy and Physiotherapy students, had groups of between five and eight. Allen et al (2004) worked on a number of participants between nine and 12, noting that this afforded the researcher a group that would be manageable, but that would also allow for the generation of a range of opinions, whilst Harvey and Holmes (2012) suggested that a group of between six and 12 was ideal. Interestingly, Carney et al. (1996) noted that from their pilot project findings, a minimum of six participants was required in order to engender a sense of "safety" within the group, illustrating this point by outlining that one of the pilot groups in the study had only contained five members and it was perceived that this could be felt as "mildly threatening".

3.3.4 Preparing for an NGT Workshop

The Meeting Room

The meeting room should be large enough to accommodate from five to nine participants. Tables should be arranged U-shape, with a flip chart at the open end of the U. Participants should be provided with pens, papers, pencils, and 75 mm x 125 mm sticky notes.

Opening Statement

The opening statements have four main parts, namely: (1) A warm welcome to all participants in the workshop followed by an explanation of the purposes of the workshop or the importance of the task, (2) Introduction of the role of each participant and a mention of the importance of each member's contribution, (3) Presentation by the moderator of the guidelines of the NGT process to ensure all members of the group fully understand these, and (4) An indication of how the group's outputs will be used.

3.3.5 Process of NGT

This section details the NGT process which was applied to the workshop in Vietnam. The process is a combination of the focus group discussion and voting phase that was developed by Varga-Atkins (2011). It has 5 phases namely: (1) Present key question to the participants; (2) Silent phase; (3) Round Robin phase; (4) Discussion/item clarification phase, and (5) Voting phase.

It should be noted that all members of the group were given instructions on the technique one week before the workshop so that all participants had time to review the guidelines of the technique. The reason for distributing early

instructions of the technique was that the majority of the participants were not familiar with the technique. Before the first step of discussion, the instructions of the NGT were explained once more by the author to ensure that all participants had a full and clear understanding of the process. Table 2 and Figure 6 below describe the instructions of the technique including the five steps.

Table 2. Instructions for performing the Nominal Group Technique

Phases	Activities
Phase 1	Present key question on the flip chart and read loudly to the participants requesting feedback. • What factors do you think impact the quality of vocational education training?
Phase 2	Silent phase • Without conferring or group discussion, based on the participants' knowledge and experience, they write down all factors (items) that they think impact on the quality of vocational education on the sticky notes (one factor per sticky note).
Phase 3	Round-robin phase • In turn, participants stick one sticky note on the flip chart without comment or discussion until all ideas are exhausted or sticky notes run out. There is no comment or discussion in this phase to prevent some participants from advocating for their position and influencing other members in the group. • If one idea (factor) of the participant on the sticky note is the same or similar to another's, then the facilitator comments and groups these together.
Phase 4	Discussion/item clarification to make themes • All members of the group clarify and discuss the unclear factors or items until everything is understandable • All these items are grouped, edited, and given theme names. No item is discarded. • The facilitator lists and assigns letters A, B, C, and so to these themes in order of popularity on the flip chart.
Phase 5	Voting phase • Based on the list of the themes, participants write down all themes with the letters on the paper, and rank their top five factors from 1 to 5. • Participants award 5 points to their top item, 4 to the second, and so on. • The facilitator collects these papers for data analysis.

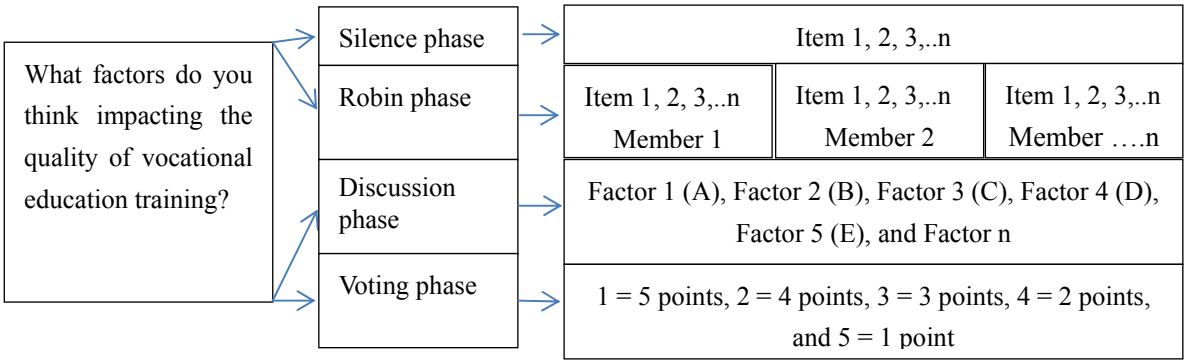

Figure 6. Nominal group technique process

4. Data Triangulation in Action

Through the triangulation technique, two reliable findings emerged from the research. First, it revealed that the issue of the relationship between VET providers and industries scored in the results of all three methods, and this has been seen as the factor of convergence to impact the quality of VET programs (see Fig. 7).

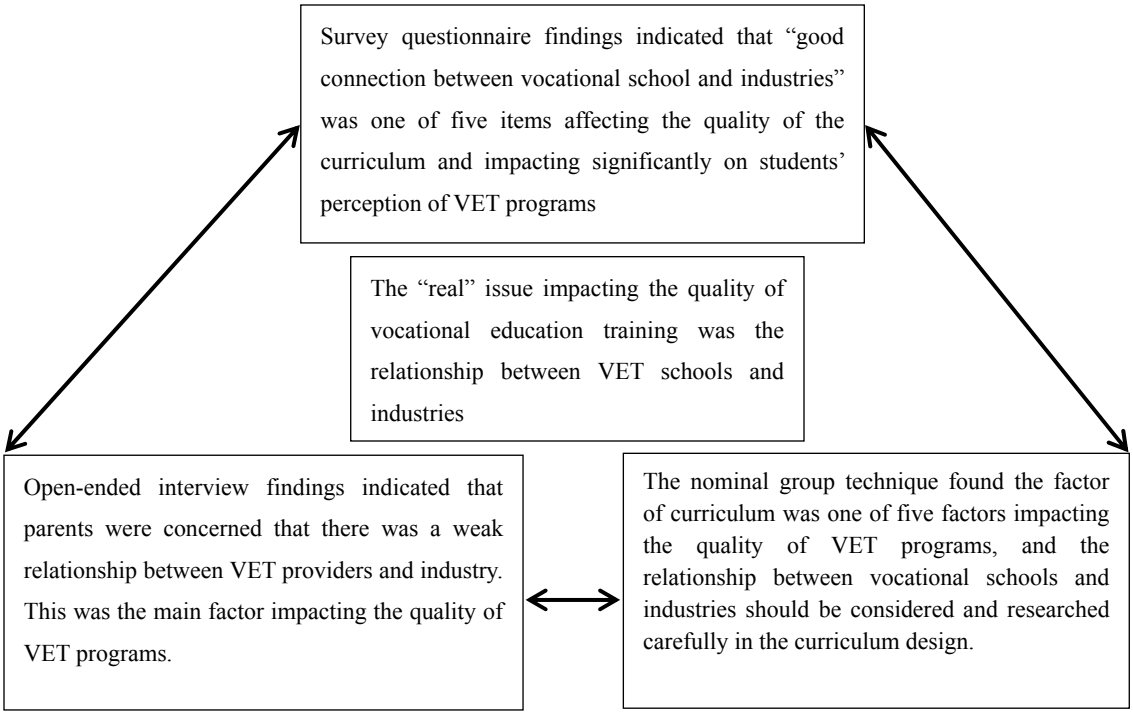

Figure 7. Data triangulation result

The findings from the survey questionnaire indicated that the VET's image had a direct correlation in both positive and negative ways with the students' perceptions on pursuing and completing VET programs. Moreover, the factors of quality of curriculum and entry requirements impacted significantly on the students' perception of the VET programs. In other words, they were the predictors of students' perception (Dang & Tanya, 2014). In this, the factor of quality of curriculum was constructed by 5 items. One of these was to provide a good relationship between VET providers and industries.

The findings from the open-ended interview questions also indicated that parents had both negative and positive perceptions of the VET sector, but leaned towards the negative side (Dang, 2015). Parents were also concerned that at the time of the interviews, there was a weak relationship between VET providers and industries and that this was the main problem impacting on the quality of VET programs. They therefore felt that it was essential for the Government to foster more cooperation between VET providers and the industrial sector.

Using the nominal group technique, six key stakeholders discussed and listed the five factors that emerged as the most important forces impacting upon the quality of VET programs in Vietnam. One of these factors was the curriculum and it was ranked as the second most important factor after the factor of Government policies. At the workshop, six key stakeholders pointed out that three weak points in the design of the VET curriculum were (1) the VET curriculum was not designed based on the output standards or learning outcomes; (2) the VET curriculum did not equip fully students with the theory, the practical and soft skills needed; and (3) the relationship between the VET schools and industries should be strengthened and that there should be more input from industry when compiling VET curriculum. So the issue of the relationship between VET providers and industries was mentioned again as an important issue impacting the quality of VET programs.

The second finding emergent from the data triangulation was that a web of influences on the students' perception of the VET sector was mapped. These influences were grouped into internal and external issues. The internal issue contained the influences from family/parents and school/guidance counsellors. The external issue comprised of four influences namely: (1) government policies; (2) social perceptions; (3) VET image; and (4) media (see Fig. 8).

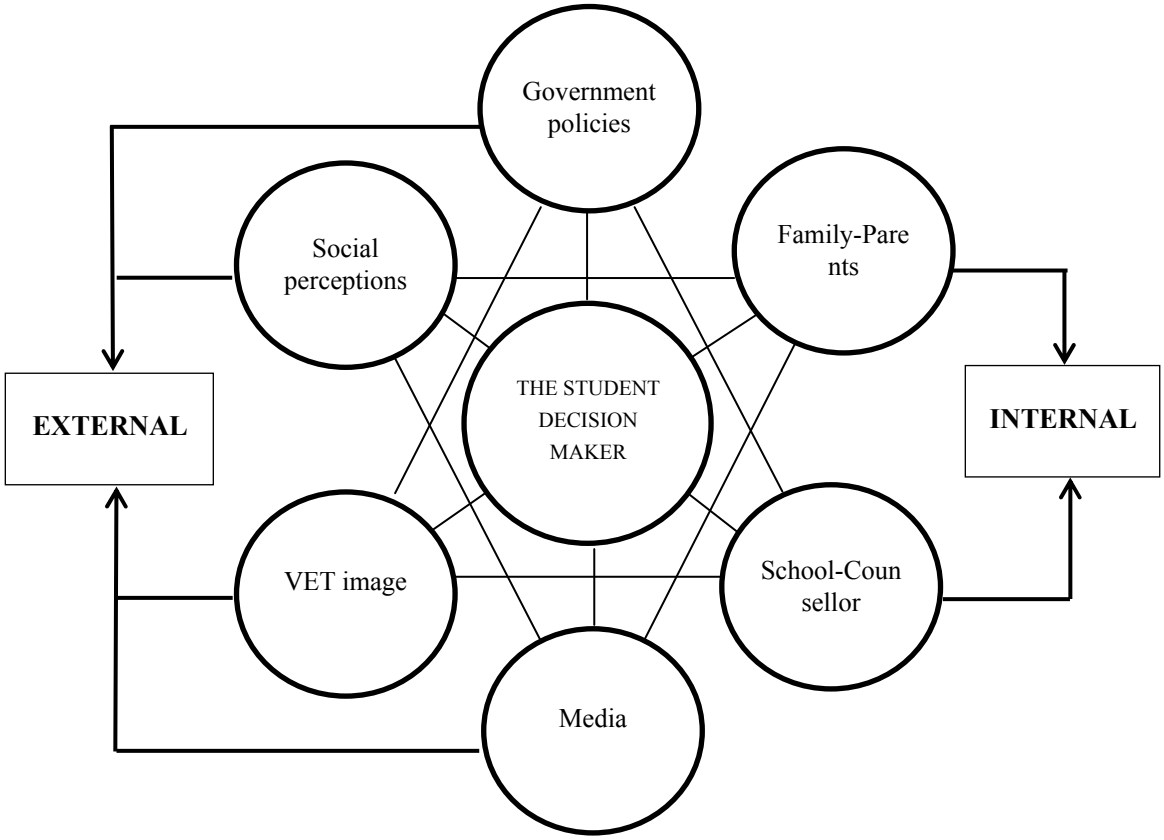

Figure 8. Web of influences

5. Conclusion

This narrative discussed the research design framework adopted in this study including the three approaches, namely, the survey questionnaire, the open-ended interview questions, and the nominal group technique, used to explore key stakeholders' perception of the VET sector in Vietnam. The details of the three approaches were given to provide readers with an overview of the roles of each approach in answering the research questions. Moreover, triangulation, as a strategy to combine the advantages of both the qualitative and the quantitative approach, and to increase the validity of the evaluation and research findings, was applied. This research also discovered where perspectives converged, and what emerged as the "real" issue impacting on the VET sector was the poor relationship between VET providers and industry. This issue should be considered and researched carefully in the design of the VET curriculum.

In addition, through triangulation, a web of influences that impact on students' perceptions of the VET sector was created. The findings based on the data triangulation technique will be useful for VET policy makers and the Vietnamese Government because

"By combining multiple observers, theories, methods, and empirical materials, researchers can hope to overcome the weakness or intrinsic biases and the problems that come from single-method, single-observer, and single-theory studies. Often the purpose of triangulation in specific contexts is to obtain confirmation of findings through convergence of different perspectives. The point at which the perspectives converge is seen to represent reality" (Jakob, 2001).

Acknowledgement

The author wishes to acknowledge about the project with Kay Harman, Brian Denman, and Dan Riley that made invaluable contributions.

References

Allen, D., Griffiths, L., & Lyne, P. (2004). Accommodating health and social care needs: Routine resource allocation in stroke rehabilitation. *Sociology of Health and Illness*, *26*(4), 411-432. http://dx.doi.org/10.1111/j.0141-9889.2004.00397.x

Australian National Health and Medical Research Council. (2005). Human research ethics handbook. National Health and Medical Research Council (NHMRC). Retrieved from http://www.healthinsite.gov.au/topics/Bioethics

Awang, A. H., Sail, R. M., Alavi, K., & Ismail, I. A. (2011). Image and students' loyalty towards technical andvocational education and training. *Journal of Technical Education and Training*, *3*(1), 13-28.

Carney, O., McIntosh, J., Worth, A. (1996). The use of the Nominal Group Technique in research with community nurses. *Journal of Advanced Nursing*, *23*(5), 1024-1029. http://dx.doi.org/10.1046/j.1365-2648.1996.09623.x

Creswell, J. W. (2002). Educational research: Planning, conducting, and evaluating quantitative and qualitative approaches to research. Upper Saddle River, NJ: Merrill/Pearson Education

Dang, H. V., & Hathaway, T. (2014). Vietnamese Students' Perception and Loyalty towards an Image of Vocational Education and Training. *Journal of Education and Vocational Research*, *5*(4), 228-238.

Dang, H. V. (2015). Parental Perspectives towards the Vocational Education Training Sector in Vietnam. *Journal of Education and Vocational Research*, *6*(1), 37-51.

Denzin, N.K. (1978). The research act: A theoretical introduction to sociological methods. New York: McGraw Hill.

Denzin, N. K. (2010). Moments, mixed methods, and paradigm dialogs. *Qualitative Inquiry, 16,* 419-427. http://dx.doi.org/10.1177/1077800410364608

Foddy, W. (1993). *Constructing Questions for Interviews and Questionnaires: Theory and Practice in Social Research.* Cambridge: Cambridge University Press.

Jakob, A. (2001). On the Triangulation of Quantitative and Qualitative Data in Typological Social Research: Reflections on a Typology of Conceptualizing 'Uncertainty' in the Context of Employment Biographies, Forum: *Qualitative Social Research*, *2*(1), 1-29. URN: urn:nbn:de:0114-fqs0101202

Johnson, D. (1994). *Research methods in educational management*. Harlow, UK. Longman.

Harvey, N., & Holmes, C. A. (2012). Nominal group technique: An effective method for obtaining group consensus. *International Journal of Nursing Practice*, *18*(2), 188-194. http://dx.doi.org/10.1111/j.1440-172X.2012.02017.x.

Horton, J.N. (1980). Nominal group technique: A method of decision making by committee. *Anaesthesia*, *35*(8), 811–814. http://dx.doi.org/10.1111/j.1365-2044.1980.tb03924.x

Kendall, K. E., & Kendall, J. E. (2002). *Systems analysis and design* (5th. ed.). Upper Saddle River, NJ: Prentice Hall.

Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin, & Y. S. Lincoln. (Eds.), *Handbook of qualitative research* (2nd ed.), pp. 163-188. Thousand Oaks, CA: Sage.

Malterud, K. (2001). The art and science of clinical knowledge: evidence beyond measures and numbers. *The Lancet*, *358*(9279), 397-400. http://dx.doi.org/10.1016/S0140-6736(01)05548-9

Mays, N., & Pope, C. (2000). Qualitative research in health care: Assessing quality in qualitative research. *British Medical Journal*, *320*(72), 50-52. http://dx.doi.org/10.1136/bmj.320.7226.50

McMurray, A. R. (1994). Three Decision–making Aids: Brainstorming, Nominal Group and Delphi Technique. *Journal for Nurses in Staff Development*, *10*(2), 62-65.

Newman, I., Ridenour, C. S., Newman, C., & DeMarco, Jr., G. M. P. (2003). A typology of research purposes and its relationship to mixed methods. In A. Tahakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioural research* (pp. 167-188). Thousand Oaks, CA: Sage Publications.

Nir, A. E. (2002). School-based management and its effect on teacher commitment. *International Journal of Leadership in Education*, *5*(4), 323-341. http://dx.doi.org/10.1080/13603120210134616

Ryan, G. W. (2003). Techniques to Identify Themes. *Field Methods*, *15*(1), 85-109.

http://dx.doi.org/10.1177/1525822X02239569

Pokorny, L., & Lyle, K. (1988). Introducing a modified nominal group technique for issue identification. *Evaluation Practice, 9*(2), 40-43. http://dx.doi.org/10.1016/S0886-1633(88)80063-1

Sale, J. E, M., Lohfeld, L., & Brazil, K. (2002). Revisiting the quantitative- qualitative debate: Implications for mixed-methods research. *Quality & Quantity, 36*(1), 43-53. http://www.cf.ac.uk/socsi/capacity/Journal/issue7.pdf

Steward, B. (2001). Using Nominal Group Technique to Explore Competence in Occupational Therapy and Physiotherapy Students during First-Year Placements. *British Journal of Occupational Therapy*, *64*(6), 298–304. http://dx.doi.org/10.1177/030802260106400606

Teddlie, C., & Tashakkori, A. (2003). Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In A. Tashakkori, & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioural research* (pp. 3-50). Thousand Oaks, CA: Sage Publications, Inc.

Thomas, D. R. (2006). A General Inductive Approach for Analysing Qualitative Evaluation Data. *American Journal of Evaluation*, *27*(2), 237-246. http://dx.doi.org/10.1177/1098214005283748

Thurmond, V. A. (2001). The point of triangulation. *Journal of Nursing Scholarship, 33*(3), 253-258. http://dx.doi.org/10.1111/j.1547-5069.2001.00253.x

Timperley, H. S., & Robinson, V. M. J. (2003). Partnership as intervention strategy in self managing schools. *School Effectiveness and School Improvement*, *14*(3), 249-274. http://dx.doi.org/10.1076/sesi.14.3.249.15843

University of Leicester. (2009). Module 9: Introduction to Research. Retrieved from http://www2.le.ac.uk/projects/oer/oers/lill/oers/fdmvco/module9/module9cg.pdf.

Van de Ven, A., & Delbecq, A.L. (1971). Nominal versus Interacting Group Processes for Committee Decision Making Effectiveness. *Academy of Management Journal*, *14*(2), 203-212. http://dx.doi.org/10.2307/255307

Varga-Atkins, T., with contributions from Bunyan, N; McIsaac, J; Fewtrell J. (2011). The Nominal Group Technique: a practical guide for facilitators. Written for the ELESIG Small Grants Scheme, University of Liverpool, October, Version 1.0.

Vella, K., Goldfrad, C., Rowan, K., Bion, J., & Black, N. (2000). Use of consensus development to establish national research priorities in critical care. *British Medical Journal*, *320*(7240), 976-980. http://dx.doi.org/10.1136/bmj.320.7240.976

Walker, E. M. (2002). The politics of school-based management: Understanding the process of devolving authority in urban school districts. *Education Policy Analysis Archives, 10*(33). Retrieved from http://epaa.asu.edu/epaa/v10n33.html