

Piloting for the Multidimensional Job Satisfaction Instrument in the Offshore Work Setting

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Abstract

This article draws upon pilot study to test the developed job satisfaction questionnaire with offshore catering employees. Changing the attention from a hypothetical work setting where job satisfaction is usually studied, this study investigated employees' satisfaction with the offshore catering job as the employees perform their job in an isolated and confined work environment. The pilot study was employed as an impetus for a scale development dissertation in validating a bespoke job satisfaction instrument in the offshore catering context. In this small-scale study, the researchers investigated job satisfaction with a purposive sample of 37 (n=37) offshore catering employees using electronic-based survey. Subsequently, an individual debriefing was conducted with four respondents to improve the questionnaire items. The objectives of the pilot study were to evaluate the quality of the items and to identify potential challenges that might occur in the main study. The study findings are not extensively discussed; however, adequate information about the study background and sample characteristics are included. The study about job satisfaction among offshore catering employees was used to demonstrate the process. The key aspects of the pilot study including the amendment of items, challenges encountered during data collection, and modifications made to the actual study are discussed.

Keywords: Pilot study; Job satisfaction; Sequential mixed methods; Offshore catering; Electronic-based survey.



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1. Introduction

Previous researchers provided earlier views of job satisfaction (Herzberg, 1959; Hoppock and Job, 1935; Taylor, 1911), measuring employee's attitudes towards their job. Studies on job satisfaction are of interest to many scholars for decades (Hardman, 1996; Roberts, 2001; Spector, 1997). Job satisfaction is viewed as the attitude of employees towards their job (Roberts, 2001; Spector, 1997), (Lawler, 1994; Tobias, 1999). Job satisfaction has been widely employed in organizational research (Spector, 1997), (Ambiga, 2007; Bakhshi and Kumar, 2009) including in unusual work setting. It has been debated in the area such as armed forces (Bokti, 2013; Chin-Siang *et al.*, 2014), offshore settings (Dickey *et al.*, 2011; Harun *et al.*, 2014; Majid, 2016; Ulleberg and Rundmo, 1997), maritime Bergheim *et al.* (2015), and Antarctica Sarris (2008). The popularity is due to the fact that most people spend an enormous proportion of their lives at work. Thus, understanding of the factors affecting their job satisfaction is crucial.

In relation to the context of the study, quantitative research designs have been widely employed. For example, quantitative research was conducted to examine the level of job satisfaction among oil rig employees in Malaysia (Harun *et al.*, 2014) and to investigate the determinants of job satisfaction with offshore workers (Dickey *et al.*, 2011). However, quantitative-based research is lacking in understanding the phenomenon from the participant's accounts (Scott C. and Sutton, 2009). Hence, the qualitative approach has been employed to explore participant's experiences and stories relating to job satisfaction. For example, a preliminary investigation was conducted with offshore catering crew to identify the component of job satisfaction (Majid, 2016). However, the qualitative approach deals with personal biases due to the fact that the researcher makes the interpretation and the issue of generalization. In fact, conducting either quantitative or qualitative research has its limitations. Mixed methods design bridges the weaknesses of both approaches. Also, mixed methods have a greater possibility to collect richer and deeper array of evidence as compared to a single method (Yin, 2014). To add, mixed methods might offer the best answer pertaining to research questions of a particular study that might not be answered by only either qualitative or quantitative approaches (Creswell and Plano, 2007). Specifically for this study, the researchers found that 'exploratory sequential mixed methods design' is the suitable model to conduct the research as compared to other mixed methods designs. However, this design also has limitations such as it requires extensive time and

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resources to complete both phases of data collection, the researchers need to determine the appropriate qualitative findings to be used in the second phase and issues in selecting and estimating reasonable sample sizes for both phases (Creswell, 2009; Creswell and Plano, 2011; Creswell, 2013; Teddlie and Tashakkori, 2009). Thus, in order to minimize the error, a pilot study was conducted to provide valuable insights.

Seemingly, a good research strategy involves careful planning and accordingly, a pilot study is often considered as part of this strategy (Lancaster *et al.*, 2004; Ruxton and Colegrave, 2006). The pilot study is associated with quantitative research design in order to test the instrumentation (Majid *et al.*, 2017b). The main objective of the pilot study is to identify probable errors and poor reliability values (DeVellis, 2003). Quite often, the emphasis of most pilot studies was heavily placed on statistical significance rather than its feasibility. Noting that, this was quite true since many of them never get the opportunity to be published because of the way the results were presented (Van and Hundley, 2001). Moreover, evidence of pilot studies in social science literature is relatively limited as compared to medical research. Although a pilot study is a small-scale study, the information can be useful not only to the researchers but also to others conducting the similar work (Thabane *et al.*, 2010). In spite of reliability statistics, this pilot study was viewed as a feasibility study (Schreiber, 2008), to anticipate potential challenges prior to major data collection.

Informed by exploratory sequential mixed methods design, piloting the instrument of this study was different from other research designs because the instrument is developed based on the qualitative findings. In most studies, the instruments were mainly adapted from previous works and modifications were made to constitute the suitable measurement tools. Importantly, the main purpose of this pilot study was to improve the quality of the instrument items prior to primary quantitative data collection. Hence, the objectives of the pilot study were: (1) to evaluate the quality of the items; and (2) to identify potential challenges that might occur in the main study. Besides, the researchers also observed time taken to complete the questionnaire to indicate time allocated by respondents in fulfilling the survey.

It is important to note that this pilot study was conducted to seek the understanding of respondents towards the questionnaire rather than statistical significance. The analysis was merely to provide an early indication of the internal consistency among the developed items. This article reports the challenges encountered during data collection, amendment of items and modifications made to the actual study. In addition, it offers the details of what exactly was learned. Thus, study about job satisfaction among offshore catering employees was used to demonstrate the process.

2. Study Background

The full-scale study is based on exploratory sequential mixed methods design that is crafted to explore job satisfaction attributes of offshore catering employees and subsequently develops and validates a bespoke job satisfaction instrument for the study context. Explaining the exploratory sequential approach, (Creswell, 2009) stressed that:

The researcher first gathers qualitative data and analyzes it ... and uses the analysis to develop an instrument ... that is subsequently administered to a sample of a population. (p.212)

The notation of the study can be represented as qual → QUAN. The quantitative phase has a greater emphasis within the study and qualitative component contributing to a larger set of goals. It signifies the importance of qualitative data in developing the instrument and serves as the foundation for the quantitative phase. It parallels with previous studies of the similar design (Myers and Oetzel, 2003; Yildirim, 2014; Zhou, 2014). The second phase of this study is to validate the job satisfaction instrument that has been developed based on the qualitative findings. The current paper reports on the initial stage of the quantitative portion.

2.1. Summary of Qualitative Phase (Phase 1)

The qualitative data were collected through in-depth, semi-structured interviews and were analyzed using thematic analysis. In the analysis, the researchers followed the six phases of thematic analysis proposed by Braun and Clarke (2006) with the aid of QSR International's NVivo 11 Software. Using the informants' stories and experiences, the researchers analyzed the data, specifically informants' satisfaction experiences with the job. To explore the practical mechanism through which job satisfaction of offshore catering employees was experienced, the researchers concentrated on the subjects that provided their job satisfaction. The researchers monitored the coding network and identified new codes. Initially, 96 codes were generated from the interviews. However, after several discussions and amendments with the committee members, the number of new codes was decreased to 70 due to redundancy and similarities among the created codes. The codes represent the items in the developed instrument.

Although the 70 items were grounded from the qualitative findings, 39 items were fundamentally deduced from literature to guide the researchers in developing appropriate items of the dimensions. The remaining 31 items were unique to the context of Malaysian offshore catering and different from previous studies. Subsequently, as part of the validation process, six expert reviews were appointed to provide content-related evidence of the developed instrument. In the two-round content-validation exercise, the experts suggested changing some of the words in the statements, remove and add items concerning the aspects of the offshore catering job. The amendments were made accordingly and the instrumentation for the pilot study consisted of 71 items. The instrument was provided in the dual language (Malay and English) and the researchers used the translation/ back-translation technique as described by Behling and Law (2000).

2.2. Previous Studies in Offshore Catering

Particularly, current research on job satisfaction of offshore catering is scarce, despite their significant roles to the success of the offshore industry. Seemingly, several researchers investigated job satisfaction in the offshore setting (Dickey *et al.*, 2011; Harun *et al.*, 2014; Ulleberg and Rundmo, 1997), (Quoquab *et al.*, 2015); however, previous studies provide very limited examples of research works relating to offshore catering employees. To the best of the researchers' knowledge, the studies by Majid (2016); (Krohne and Magnussen, 2011); (Majid *et al.*, 2017a) were the only empirical research specifically highlighted the offshore catering, which is subject to expansion during the publication of this article. Majid (2016) conducted a preliminary investigation on the components of job satisfaction among offshore catering crews. A study by Krohne and Magnussen (2011) focused on sickness presenteeism among offshore catering employees within the Norwegian context. A portion of the findings showed that the employees viewed the concept of job satisfaction differently from onshore workers. Recently, (Majid *et al.*, 2017a) studied the employee satisfaction with offshore catering job that involved the use of pilot interviews. However, the previous works did not explore the factors influencing job satisfaction in great detail.

In addition, several studies were specifically on offshore catering, but they were non-empirical studies. Earlier, (Buchan, 1985) reported adoption of collective bargaining in offshore catering. Other studies include the importance of food hygiene and critical areas in offshore catering (Chalk, 1987) and the role of offshore catering in the work organization (Holter, 1987). Later, (Lockie, 1991) investigated changes in food preparation and presentation. These studies highlighted the operation of offshore catering rather than the employees. The dearth of empirical and recent research in the study context invites potential areas to be explored. Therefore, there is a need for further investigation, especially job attitudes of the offshore catering employees (Majid, 2016) since they involved in an unusual work setting.

3. Design and Method

3.1. Recruitment of Respondents

Permission to conduct the study was submitted to the Ethics Committee for Research Involving Human Subjects at researcher's institution and acquired formal ethical approval (Ethical protocol reference: JKEUPM(FSTM-P121)2017). The pilot study was conducted in two stages. In the first stage, the researchers distributed the questionnaire using self-administered questionnaires. The population of this study was focused on employees who were working in offshore catering sector in Malaysia. The list of employees working in offshore catering sector does not exist. Thus, the researchers did not have a clear view of the population in which the researchers sought to generalize. Based on personal communications, the catering employees represent a small number in the offshore community. The amount of catering employees depends on the number of person-on-board at each location (e.g. 10 catering employees for every 100 offshore employees).

The pilot study was conducted with a purposive sample of 37 (n=37) offshore catering employees who had similar sampling criteria drawn from the study population. When there are practical and strong justifications, a non-probability sampling technique is an alternative to probability sampling (Black, 2008). It is supported that 30 respondents are a reasonable sample for pilot study (Isaac and W., 1995; Johanson and Brooks, 2010; Moser and Kalton, 1985). Thus, the number of sample of the pilot study achieved the recommended sample size. The Stage 1 pilot study aimed to assess the understanding of respondents towards the questionnaire, identify problems that might occur during main data collection and estimate the time needed by the respondents to complete the questionnaire.

As part of the aim of Stage 1, the researchers also intended to test the effectiveness of the electronic-based survey rather than using traditional paper-based survey. It justifies the decision to employ the electronic-based survey due to limited access to the workplace imposed by the management and policymakers. Hence, the researchers assigned Camp Boss (also known as a catering supervisor) to distribute the survey link to the catering employees. The Camp bosses were contacted a few weeks prior to the pilot data collection and informed about the study purpose. They were located at four locations in Terengganu (a state in Malaysia) offshore areas. At each location, the number of offshore catering employees was 14, 12, 7 and 32 catering employees, respectively.

In the second stage, the researchers conducted an individual debriefing with the selected respondents through phone calls to identify items that need to be improved. Four respondents who filled the online survey were purposively selected, contacted through email and subsequently continued the discussions via phone calls. The objective of this stage was to elicit the respondent's feedbacks on the items that need to be improved. The items were revised based on the respondent's comments and suggestions.

3.2. Testing the Instrument

A bilingual (Malay and English languages) was used in the questionnaire. The inclusion of Malay language is essential since the respondents were Malaysian, had a minimal educational background and English is not their main language. The instrument was divided into two sections namely job satisfaction and demographic information sections. In Section A, job satisfaction was measured using items that were developed by the researchers from the previous phase of the full-scale study. In total, there are 71 items that were assessed during the pilot study using seven-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The multidimensional job satisfaction instrument consists of 11 dimensions that assessed the relationship with co-workers, salary, fairness, teamwork, fringe benefit, ability utilization, job itself, relationship with superior, work environment, expectation and achievement. In addition, Section B collected information regarding employee demographic information such as gender, age, financial status, working duration, and current position. Furthermore, at the end of the questionnaire, the

researchers provided a column to allow the respondents to give comments and suggestions regarding the clarity of the items, the organization and layout, the scale used and overall suggestions to improve the questionnaire.

The questionnaires were developed using the Qualtrics software and sent to the respondents through the ‘Whatsapp’ application. The electronic-based survey is viewed as an alternative to traditional data collection because of its advantage on cost-effective and simpler logistics (Scott A. *et al.*, 2011; Zuidgeest *et al.*, 2011). The respondents can answer the questionnaire by using their mobile phone using the shared URL link. Although some locations have poor network coverage, Wi-Fi connections were provided at offshore. Uniquely, this software allows the researchers to track the recorded responses and responses in progress.

The researchers shared the survey link with the appointed Camp bosses and sought their assistance to forward the survey link to the catering employees on their locations. The respondents took about eight minutes to almost 13 hours to complete the questionnaire. Still, most of the respondents were able to complete the survey for less than 15 minutes. The software allows the respondents to save and continue later hence, they were able to perform their daily routine and continue to answer the survey when they have free time. However, there were eight incomplete responses, indicating unusable data. The researchers analyzed data obtained from this pilot study using SPSS version 23. Descriptive statistics were used to describe the demographic profiles of the respondents. In addition, the researchers assessed the internal consistency of the instrument items using reliability statistics to examine its alpha scores.

3.3. Providing Incentives

The researchers provided a small monetary incentive for respondents who completed the survey. Previous researchers suggested that providing financial incentives knowingly tend to increase the responses rates (Olsen *et al.*, 2012; Paul *et al.*, 2005; Ulrich *et al.*, 2005). It is a researcher’s responsibility to give something back and as part of the reciprocal trust (Kawulich, 2005). The researchers sought Camp bosses assistance to inform the employees at their locations about the incentive information.

To test the effectiveness of monetary incentive, the questionnaires initially sent to Camp bosses located at A, B and C and did not provide any incentives. Of 33 employees, only 14 completed the questionnaires. Later, the researchers requested Camp bosses located at D and offered monetary incentives to respondents who completed the survey. Apparently, 23 respondents completed the survey from a total of 32 employees. From 65 employees in four locations, 37 completed the questionnaires, accounted for 57% of response rate. Table 1 illustrates the response rate generated from the studied locations. For the cash transfer purpose, the researchers contacted the respondents through email address they provided in the completed online survey.

Table-1. Response rate of the pilot study

Location	Sample	Money Incentive	Completed response	Response rate
A	14	Not provided	14	42%
B	12			
C	7			
D	32	Provided	23	72%
Total	65		37	57%

4. Data Analysis

4.1. Result of Analyses

The analysis of the data was mainly descriptive with data about respondents’ demographic background being analyzed for the frequencies and percentage. The following table displays the demographic information of the respondents.

Table-2. Demographic profiles of the respondents

Characteristics	Value
Age	
Mean	31.4
Range	21-52
Marital status	
Single	18 (48.6%)
Married	19 (51.4%)
Educational level	
Secondary school	14 (37.8%)
Certificate	12 (32.4%)
Diploma	10 (27.0%)
Bachelor’s degree	1 (2.7%)
Position	
Chief cook/ Cook/ Assistant cook	16 (16.2%)
Camp boss (catering supervisor)	9 (24.3%)
Chief/ steward/ Steward/ Galley hand	9 (21.6%)
Baker	3 (8.1%)

Employment status	
Permanent	3 (8.1%)
Fixed term (1 to 3 years)	15 (40.5%)
Temporary (Less than 12 months)	19 (51.4%)

All respondents participated in this study were male. Similarly, data from this stage was analyzed using a reliability test to determine its Cronbach's alpha value. The researchers entered the data from 37 respondents into the software and labeled specific codes to each questionnaire item. The results of the pilot test reliabilities are presented in Table 3.

Table-3. Cronbach's alpha coefficient

Instruments	No. of Items	Alpha value, α
Job satisfaction:		
- Relationship with co-workers	7	.643
- Salary	4	.589
- Fairness	5	.344
- Teamwork	7	.748
- Fringe benefit	5	.682
- Ability utilization	7	.780
- Job itself	11	.768
- Relationship with superior	6	.883
- Work environment	6	.811
- Expectation	7	.756
- Achievement	6	.829
Overall	71	.936

From the analysis, the output was assessed by analyzing the results based on 'corrected item-total correlation'. The criteria suggest that if the score indicates .3 and above, the item is established to be working appropriately (Field, 2005). However, if the item demonstrated a score less than .3, the particular item needs to be reworded. In addition, three dimensions namely relationship with co-workers, salary and fairness had an alpha value between .344 and .643, indicating unacceptable and undesirable values (DeVellis, 2012; Hair *et al.*, 2010). However, removing the items of the dimensions was not recommended since the aim of the pilot study was to improve the quality of items. As mentioned earlier, the analysis was merely to provide an early indication of the internal consistency among the items. Thus, from the results of internal consistency, the possible adjustment was made to ensure instrument clarity through individual debriefing.

4.2. Individual Debriefing

In order to improve the items to ensure the quality of questions and avoid respondent's confusion, the researchers sought opinions of four respondents from the pilot study. The individual debriefing was conducted and they were contacted by phone. The items that had low 'corrected item-total correlation' scores ($< .3$) were brought to discussion with the respondents to improve the quality of the items. The questions were reviewed and discussed individually with the respondents and thoughtful attention is given to elements such as questions wording, language used and additional comments. Thus, the researchers took into serious consideration of their suggestion. This procedure supports construct validity for the reason that it improves items to ensure it is conceptually consistent (Netemeyer *et al.*, 2003). For example, item 'employee from my section' was reworded as 'employee from the catering section', because they indicated confusion with 'my section'. Moreover, they were also suggested 'return home' to be replaced with 'sign off', in which the term they often used in the offshore community. From the discussions, the researchers revised and reworded 12 items to improve its quality.

5. Discussions and Conclusion

This study provides insights into the importance of pilot study, in spite of its limited sample size, can inform the investigators in similar areas about the best research process and likely outcomes. Piloting the survey in offshore setting was relatively different from onshore context. In this study, the research team had a major limitation while conducting the pilot study in which the researchers were not able to meet the respondents personally and collect the data at the workplace. This was the main reason for the decision to use electronic-based survey that was aimed to facilitate the process of data collection. Nevertheless, it is relevant due to the nature of the catering department contains a small number of employees as compared to the general offshore workers. It would be more practical for a study that aims to the whole offshore workers at a location. If the researchers decided to collect the information using self-administered questionnaire, it should take a longer time to collect the completed questionnaire since it requires the researchers to go to different locations. Thus, due to the small sample on each location, using an online survey is an alternative method to obtain the information.

In about four weeks, the researchers were able to collect 37 usable data from the respondents. Apparently, the sample was achieved after several follow up with the respondents and Camp bosses, who assisted in distributing the survey link. It is learned that, apart from the electronic-based questionnaire, the researchers should consider paper-

based questionnaire to increase the response rate. This was mainly due to the probability of poor Internet coverage at the locations. It implied that relying solely on the online survey might prolong the major data collection process. The questionnaire might be handed and posted to the identified Camp bosses or authorized personnel. Using paper-based survey is paralleled with previous studies in the offshore setting by posting to identified personnel (Dickey *et al.*, 2011), (Quoquab *et al.*, 2015) and self-administered (Harun *et al.*, 2014). However, it should be anticipated that the return of the paper-based questionnaires might take longer time. The researchers might collect the completed questionnaires after the appointed Camp boss signed off from their offshore duty. This should take about 2 weeks and up to 3 months, depending on their offshore duty schedule. Apart from that, the researchers should look for an opportunity to meet the group of employees at a specified location, where the researchers can personally administer the questionnaire and able to collect it immediately.

Some of the potential respondents, who were onboard, mentioned that they were unable to open the link shared through the 'Whatsapp' application due to poor internet coverage. Some respondents had opened the shared URL link; however, they did not complete the survey. This might be due to internet networking disruption, causing some of the respondents had difficulties to continue answering the survey. Moreover, they also had limited time to use Wi-Fi connection provided at their workplace in which imposed by the management. Moreover, after several follow up with the Camp bosses, they responded that the respondents were busy with their duties. Thus, they had minimal time participating in the survey. Furthermore, they mentioned that the respondents were not used to the survey questionnaire. Hence, it makes sense that they required more extended time to complete the survey.

It was found that providing monetary incentive helped to increase the response rate. Since the respondents were sharing their information and allowing the researchers to invite respondents to participate in the study, the researchers decided to provide monetary incentive as a return. Evidently, the incentive was used to encourage the respondents to participate in the study. Thus, participants benefitted from the reward appropriate to justify their commitment of time in completing the survey.

In the questionnaire, the respondents were requested to write comments about the clarity of the items, the organization and layout, the format of measurement and overall suggestions improve the questionnaire. In overall, their comments on the criteria were appropriate and good. Hence, modification of the questionnaire items was based on individual debriefing with selected respondents. Most of the amendment was made to accommodate their ability to answer the questions in the Malay language. It was appropriate due to the minimal educational level of the respondents. From the individual debriefing, 12 items of the job satisfaction questionnaire were improved to ensure quality items. The results of the pilot study improved the quality of the selection of factors that influence job satisfaction among offshore catering employees in Malaysia. The implications of pilot study have improved the quality of the items and identified the possible challenges that might occur during in the major study. It is suggested a pilot study should be reported in detail of the actual improvement made to the design of the study and the research process. Therefore, the information can be useful to others conducting the similar work, which future research in similar setting should anticipate.

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