Measuring Validity and Reliability of the instrument on Property Manager's Competencies in Managing Green Office Building

Syamim Jaafar, Nor Aini Salleh, Morni Kaspin, Noraimi Abdullah

Abstract: ***The property management profession has expanded in parallel with the current technological revolution. The green building development in Malaysia has giving property management play an important part as to sustain the "greenness" of green building for its whole life cycle. However, the research on the property manager's competencies in managing green building is rarely done. Hence, the instrument is new construction and need to test the validity and reliability to prove the originality and accuracy of the construct. Thus, this paper presents the reliability and validity of the property manager's knowledge, skill, ability, and other characteristics. Fifty-Six items are identified and validated by three expert property manager who experiences in managing green office building. Then, a survey was conducted among property manager who currently manage green office building at Penang, Perak and Kelantan area. A non-random sample of 15 property managers was selected. The results found the level reliability using Cronbach Alpha index for each construct are 0.916 (knowledge), 0.911 (skill), 0.888 (ability), 0.867 (other characteristics). It believes the findings on validity and reliability of instruments are promising an essential competencies needed by the property manager in managing the green building.***

Keywords: ***property manager, competencies, green office building, validity and reliability***

I. INTRODUCTION

The burgeoning green building development in Malaysia has given attention to the property management industry as play their roles to sustain the "greenness" of green building for its whole life cycle. The building's owner believes the property management may enhance the capital value of their building and at the same time strengthen the building's lifespan. However, issues arisen on the lack of property manager's competencies has overshadowed the benefits from the development of green building (Izran Sarrazin, Nurul Nadiah, Shardy, Neo Bee, & Nur Aqlima, 2014; Ruban, 2016). Property manager faced challenges during management activity due to the uniqueness of green material and technology adopted in the green building make it complexities and difficulties to manage (Izran Sarrazin *et al.*, 2014).This will give impact on green building performance such as high operation and maintenance cost *(*Izran Sarrazin *et. al*, 2014; Miller, Pogue, Saville, & Tu, 2010). The previous study on the competency concept has proof that individual competency will effect to excellent job performance (Boyatzis, 1982; McClelland, 1973; Spencer & Spencer, 1993). Hence, to tackle the excellence green building management, the study intends to identify the property manager's competency in managing green building and researcher focusing on green office buildings in Malaysia. Parallel with that intention, this paper only focuses on measuring the validity and reliability of the instrument on the property manager's competencies in managing green office building. This study begins with a section dedicated to defining the main term used in study constructs such as green office building, competencies, and property manager, with an overview of the previous study on property manager competencies. The second section presents the methodological design used in this study for purposes of scale construction and validity of the construct. Then, it followed with the result obtained from the method used and discussion from the analysis. Finally, the last section closes with a presentation of the conclusion and future direction of research.

II. GREEN OFFICE BUILDING

The green office building has its own identity and unique features that distinguish with the normal building. Generally, the green office building is a business space that providing better indoor environment quality (IEQ), providing sufficient light where it may reduce the need of electric lighting and avoid visual discomfort i.e glare; better ventilation, avoid thermal discomfort; and no volatile

Revised Manuscript Received on March 08, 2019.

Syamim Jaafar, Centre of Post Graduate Studies, Faculty of Architecture, Planning, and Surveying, UniversitiTeknologi Mara, Perak Branch, Seri Iskandar Campus, Seri Iskandar, 32610 Perak, Malaysia

Nor Aini Salleh, Department of Estate Management, Faculty of Architecture, Planning, and Surveying, UniversitiTeknologi Mara, Perak Branch, Seri Iskandar Campus, Seri Iskandar, 32610 Perak, Malaysia

Morni Kaspin, Centre of Post Graduate Studies, Faculty of Architecture, Planning, and Surveying, UniversitiTeknologi Mara, Perak Branch, Seri Iskandar Campus, Seri Iskandar, 32610 Perak, Malaysia

Noraimi Abdullah, Centre of Studies for Estate Management, Faculty of Architecture, Planning, and Surveying, UniversitiTeknologi Mara, 40450Shah Alam, Selangor, Malaysia

organic compounds used to reduce the number of sick leaves among building occupants (Miller, Pogue, Gough, & Davis, 2009). The uniqueness of architectural green office building has to attract people, especially among high group tenants. The tenants prefer green space to operate their business because the better environment will produce greater worker productivity (Delmas & Pekovie 2012). Furthermore, people prefer green space due to enjoyment on reducing building life-cycle cost likes utility bills and building maintenance cost (Nalewaik&Venters 2008). However, the reduction of life-cycle cost cannot be achieved if improper building management. Therefore, it is important for property management organization to manage green building as to sustain the benefit of the green office building.

III. PROPERTY MANAGER'S COMPETENCIES

The competency has been studied in the early 20th century by Fredrick W. Taylor and followed by McCelland (1973), Boyatzis (1982) as well as Spencer & Spencer (1993). Then, competency studies are widely growing among various researchers from multi-disciplines especially human resources management discipline who active in conducting studies related to competencies (Mohmad, Othman, & Qusoiri, 2008). Generally, competencies mostly preferred to the collection of success factors necessary for achieving an important result in a specific job or work in the particular organization (Chouhan & Srivastava, 2014). The success factor is combination of knowledge, skill and abilities/ attributes (KSA's) and other characteristics (KSAO's) that describe specific behaviors and will demonstrated a superior job performance for specific work (Ulrich, Brockbank, Yeung, & Lake, 1995; Parry, 1996; Mansfield, 1996; Hammersley & Tynon, 1998; Hoffmann, 2008). In this study context, competency for the property manager has embraced all possible attributes of KSA and KASOs at the individual level. The collection of KSAOs which is corresponding to competency is also used sometimes (MohdZaki, Nor' Aini, &Shardy, 2012). The individual competencies are comprised of technical and behavioral competencies which when it congruent with the requirement of the property management job description and organization environment will effect to effective green building management performance. The technical competencies are referring to the knowledge, skill, and ability (KSA) in the scope of green building management, while, the behavioral competencies are referring to other competencies (attitude, motivation, personalities, and value) that important for property manager execute successfully green building management performance.

Traditionally, the property manager is a person who involves in property management activity such as performed the leasing/operation function that associated with the real estate property, concentrated on the implementing of owner policies and the person who manage and control any land, building and any interest therein (Thorncrof, 1965). The property management activity is done to achieve owner objective such as maximizing income, reduce tax, adequate insurance coverage and appreciate the capital value in future, formulation of value creation strategies, improving revenue flows, unlocking latent real estate value through marriages' with adjacent properties and negotiation of tenancies (Shenkel, 1980;Gurjit, 2005). Hence, the professional property manager is acceptable by the public in managing their building due to they belief on fact as skill and knowledge from property manager may secure building and achieve their objectives (Gurjit, 1996). Therefore, it seems property manager need enough competencies in managing building to ensure the building may fulfill public expectation in managing their building and achieve their objective.

A study on the property manager's competencies in managing green office building is rarely done by previous researchers. Before this, the research only studied on the property manager's competency in managing conventional buildings (Clark & Hinxman, 2009; Mariah, Hakim, Maimunah, & Shahril, 2014; Mohd Zaki *et. al*, 2010; Pheng & Lee, 1993; Poon & Brownlow, 2014; Raja Mazyani & Abdul Hakim, 2015; Tas, Labrecque, & Clayton, 1996; Zarita, Hwa, & Sharuzaman, 2016). The competencies element from previous researchers is outlined in Table 1 as shown in the next section. Highlighted from the previous study regarding the property-based professional competencies is related to the nature of the business. The managers required knowledge and skill or ability that related to their business management practice. The property management practice in green building is minimal difference in term of adding knowledge and technical skill (Syamim & Aini, 2017) due to eco-friendly building design and material used in green building (Razali, Kamarudin, Zainuddin, & Othman, 2015). The additional knowledge is according to key practice for green building management in Malaysia (Aghili, Abdul Hakim, & Sheau-ting 2016) which are sustainable procurement, sustainable operation, resources management, repair, and maintenance management and environmental health management can be a part of knowledge for the property manager to keep the green building well functioned. The technical skill comprise skill in handling energy-using equipment and water-using equipment which includes its processes such as control technologies like handling energy monitoring system, electrical distribution system, HVAC systems, plumbing fixture and metering equipment (Siciliano, Tutterow, & de Los Reyes, 2013; Smallwood, Sauntson, Short, Cranfield, & EERE, 2008).

IV. METHODOLOGY

Questionnaire survey has been used in obtaining competencies needed by the property manager in managing the green building. A self-administered questionnaire was conducted by email to the property manager who involves in managing green office building. To accomplish this study, the researchers identify 6 green office building at Penang, Perak and Kelantan area. The data collected from the completed questionnaire was analyzed using frequency

analysis and Cronbach's Alpha. The Statistical Package for Social Science (SPSS) version 21 software was used in order to facilitate the data analysis.

Sample

A purposive sampling was chosen, which involve 30 property managers who managing green office building. The total respondent is taken to run the pilot test is 30 respondent as suggested by Johanson & Brooks (2010) is a reasonable minimum recommendation for the pilot study. However, from 30 questionnaires were distributed via email, only 15were successfully received from respondents. Indeed the respondent does not fulfill the requirement of the minimum sample, but, samples as small as 10-15 per group sometimes being sufficient as long as observed coefficient alpha to be close to 0.80 for reasonable internal consistency estimation (Hertzog, 2008).

Instrument

The questionnaire instrument consisted of two sections, A and B. Section A, the questions are on basic information such as the respondent background of the study, working experience, area involvement in property management, and job position in the organization. Section B, the questionnaire is designed to measure four competency elements in managing green certified office building which is knowledge, skill, ability and other characteristics that adapted from the literature review. All the items were prepared in English and Malay Languages (Bahasa Malaysia), because the person involves in property management, are professional and come from the different socio-demographic background. The chosen of Malay and English language because the Malay language is Malaysian commonly used and English as the professional language used in the workplace (Rajadurai, 2010; Tajuddin, 2015).

In survey practice, various lengths of Likert scale start from 2 points up to 11 or even more have been used in social study researches. However, the 5 point scale is normally used because it offering enough choice as compared with 2 or 3 point options where it only measures direction rather than the strength of opinion (Johns, 2010). Despite from that, Dawes (2008)argued on his experiment using 5 points, 7 points and 10 points, states the comparable results are obtained from 7 to 10 point scale may yield more information than shorter scale. But, in deciding the best point scale, it better see on the quality scale to use (Revilla, Saris, & Krosnick, 2014)because it can reflect the strength of the relationship between the observed variable and the underlying construct of interest (Alwin, 2007).According to Revilla *et. al,* (2014) on their study choosing the number of categories in agree-disagree scale has revealed the scale using 5 points produce better data quality as compared to 7 or 11 or more scale. Therefore, the researcher decides to use the 5 point scale. The scale used in the questionnaire for section B using 5 points important Likert scale as suggested by Brown (2010) point 1=Not Important, 2=Slightly Important, 3=Fairly Important, 4=Important, and 5=Very Important. The label scale of the instrument is rooted in the aim/purpose of research (Joshi, Kale, Chandel, & Pal, 2015).As the purpose research is to see the degree of important/significant competencies, the researcher decides to label "important" scale.

Table. 1 The summary of competencies elements dimension adapted to construct the questionnaire

Independent Variable		Authors	Additional element
Main Element	Sub- Element		
Knowledge	The legislation, codes, directive & regulatory issues Environmental impact management Sustainable operation Health & safety Human Resources Management Operation installation & repair (maintenance) Material resources Building & construction design Administrative management Clients care/ personal & customers service Financial management Business marketing/ management Sustainable procurement Planning and schedule Economic and accounting Quality Management Building Service and Technology Tenants and occupancy Basic knowledge	(Aghili *et. al.*, 2016; Donellan, 1998; Hwang & Ng, 2013; Kay & Moncarz, 2004; Mariah *et. al.*, 2014; Mohd Zaki *et. al.*, 2012; Pheng & Lee, 1993; Poon & Brownlow, 2014; Raja Mazyani & Abdul Hakim, 2015; Tas *et. al.*, 1996; Zarita *et al.*, 2016)	Innovation

Skill	Interpersonal skill Communication skill Effective verbal presentation Critical thinking Analytical thinking Second language Monitoring skill Basic computer skill Information technology skill Negotiation skills Flexibility and adaptability Financial analysis skill Networking Independent thinking Technical skill	(Donellan, 1998; Hwang & Ng, 2013; Kay & Moncarz, 2004; Mariah *et al*., 2014; Mohd Zaki *et al.*, 2012; Pheng & Lee, 1993; Poon & Brownlow, 2014; Raja Mazyani & Abdul Hakim, 2015; Siciliano *et al.*, 2013; Smallwood *et al.*, 2008; Tas *et al.*, 1996; Zarita *et al.*, 2016)	Nil
Ability	Reading and writing Oral comprehensive Oral expression Ability to define and solve the problem Time management Written comprehensive Teamwork Ability work under pressure Continuous learn	(Donellan, 1998; Hwang & Ng, 2013; Kay & Moncarz, 2004; Mariah *et al*., 2014; Mohd Zaki *et al.*, 2012; Pheng & Lee, 1993; Poon & Brownlow, 2014; Raja Mazyani & Abdul Hakim, 2015; Tas *et al.*, 1996; Zarita *et al.*, 2016)	Nil
Other characteristics	Dependability and reliability Leadership Integrity Professionalism Self-confident Self-motivation Self-control Persuasion Decision making Practical experience Initiative	(Donellan, 1998; Hwang & Ng, 2013; Kay & Moncarz, 2004; Mariah *et al*., 2014; Mohd Zaki *et al.*, 2012; Pheng & Lee, 1993; Poon & Brownlow, 2014; Raja Mazyani & Abdul Hakim, 2015; Tas *et al.*, 1996; Zarita *et al.*, 2016)	Nil

Before distributing the questionnaire, the validity of the survey instruments was undertaken.In achieving the content validity of the instrument, an extensive search of literature from theories, previous studies, models and past research findings that related to leisure study has made. To validate the content instrument, the researcher makes a rational analysis of the instrument by an expert who familiar with the construct of interest or expert on the research subject (Polit & Beck, 2006; Sangoseni, Hellman, & Hill, 2013). The instrument is validating by getting a consultation with two researcher's advisors and three property manager practitioners who expert in managing the green building. The property managers selected is a person who has experienced more than five years in managing the green building in Malaysia. A few changes are made upon comments such as wording (appropriate terms used, grammar and word spelling), and adding one item which is "innovation".

V. RESULT

The property managers who give feedback on the survey involve senior, middle and junior level manager in property management organization. Mostly, among middle managers give the highest feedback with the total percentage of 53.3% as compared with junior level (33.3%) and senior level (13.3%). With regard to education level, property manager with bachelor holder show the highest with total percentage 60% as compare to SPM/STPM (6.70%), diploma (6.70%) and MSc/MBA/Master (26.7%) holders. Next, highest property manager's working experience has is within 1-5 years with total percentage is 46.7%. Approximately 20% of property managers have 6-10 years of working experience and it follows by 13.3% who has working experience within less than 1 year and more 15 years. The lowest working experience is 11-15 years with percentage is 2.9 %. Lastly, an aspect of property manager's area involvement in property management activity shows the highest is building maintenance with total percentage approximately 22.64% and slightly below that is follows by operational management with total percentage 20.75%. The lowest area involvement is marketing with total percentage is only 5.66%.

The main subject of the survey instrument is to measure reliability competencies elements. There are many ways to test the reliability such as split-half reliability, Kuder-Richardson coefficient, and Cronbach's alpha. The researcher using Cronbach Alpha because it is the most commonly used test to determine the internal consistency of an instrument (Heale & Twycross, 2015). Table 2 below represents the Cronbach's Alpha reading to every element using an instrument.

Table. 2 Result of Cronbach's Alpha readings

No.	Main Variables	Sub-variables	Cronbach's Alpha	Cronbach Alpha if Items deleted
K1	Knowledge (N=15, Items=20)	National Legislation	0.916	0.911
K2		Environment Impact Management		0.908
K3		Sustainable Operation		0.909
K4		Health & Safety Management		0.910
K5		Human Resources Management		0.915
K6		Building Installation & Repair		0.907
K7		Building Service & Technology		0.909
K8		Material Resources Management		0.913
K9		Green Building Design		0.913
K10		Administrative Management		0.911
K11		Client Care		0.916
K12		Financial Management		0.912
K13		Business Marketing Management		0.907
K14		Economic & Accounting		0.907
K15		Sustainable Procurement Management		0.917
K16		Tenant & Occupancy Management		0.916
K17		Quality Management		0.915
K18		Basic Knowledge		0.914
K19		Planning & Scheduling		0.909
K20		Innovation		0.909
S1	Skill (N=15, Items=15)	Interpersonal skill	0.911	0.908
S2		Communication skill		0.903
S3		Effective verbal presentation		0.911
S4		Critical thinking		0.905
S5		Analytical thinking		0.899
S6		Second language		0.903
S7		Monitoring skill		0.907
S8		Basic computer skill		0.901
S9		Information technology		0.913
S10		Negotiation		0.900
S11		Independent thinking		0.902
S12		Financial analysis		0.897
S13		Flexibility & adaptability		0.899
S14		Networking		0.916
S14		Technical skill		0.908
A1	Ability (N=15,	Defined & solve problem	0.888	0.874
A2		Reading & writing		0.886

A3	Items=10)	Oral comprehensive		0.869
A4		Oral expression		0.870
A5		Time management		0.869
A6		Comprehensive writing		0.869
A7		Expression writing		0.870
A8		Teamwork		0.865
A9		Technology tool		0.910
A10		Continuous learning		0.880
O1	Other characteristics (N=15, Items=11)	Professionalism	0.867	0.843
O2		Self-motivation		0.843
O3		Self-confident		0.843
O4		Self-control		0.865
O5		Being persuasive		0.871
O6		Decision making		0.857
O7		Practical experience		0.852
O8		Initiative		0.843
O9		Dependability		0.845
O10		Integrity		0.869
O11		Leadership		0.884

From the result, all composite variable as shown in Table 2, were found to have a coefficient alpha greater than 0.70 which is from 0.867 to 0.916. Thereliability of knowledge and skill is greater as compared with the ability and other characteristics with reliability Cronbach's Alpha reading is 0.916 and 0.911 respectively. Meanwhile, the Cronbach Alpha's reading for ability and other characteristics are both shows 0.888 and 0.867.

VI. DISCUSSION

Competencies are a vital component for property manager in executing green office building management. The competencies element stated in Table 2 is very important in order to improve the property management professions especially management in green buildings. Currently, the instrument to evaluate the implementation of the property manager's competencies in managing green office building is still lacking due to little research on that area. Since the previous study no validated instrument in the context of this study and also there is no such instrument which subjects to property manager competencies in managing the green office building, this instrument has been developed by the researcher. The instrument is developed based on the previous study on property manager competencies in managing conventional building plus added with green element knowledge and skill. Then, the instrument is assessing the reliability testing and overall show all elements in the instrument is to be found between 0.867 to 0.916. The result considers acceptable as Sekaran (2003) state the value must more than 0.7 for sufficient reliability.

Table 2 present knowledge element is the highest reliability reading because the sub-elements stated is related to specific task or job that needed by property manager as their knowledge-base to ensure green office building management can be done smoothly. For example, knowledge in legislation, codes, standard, directive, and regulatory issues is essential to ensure all the work and activities involved in the management comply with the regulation all the times and any problems related to the regulatory issue property can be settled effectively (Bennett, Wallace, & Williamson, 2008). With the enough knowledge in regulatory and legal issues property manager can tackle building occupants to follow the green lease which generally address "environmentally friendly" products to be used, water and energy conservation, the use of alternative energy such as solar or wind, indoor air quality and dispute resolution (Howe & Gerrard, 2012). The knowledge of financial and cost management is needed in property management to ensure the manager can totally achieve the benefit of green building likes achieved the reduction of building life-cycle cost and at the same time to maximized high return to building owners and/or investors(Kay & Moncarz, 2004;Lo, Hui, & Zhang, 2014). Furthermore, the key practice for green building management which are sustainable procurement, sustainable operation, resources management, repair, and maintenance management, and environmental health managementthat studied by Aghili *et al.* (2016), also shows important knowledge-based for the property manager. The additional "innovation" knowledge see as important element toward property managers to help the green building itself to achieve/renew the accreditation from Green Building Index (GBI) to recognize as Green Building (GBI, 2017).

Skill element is showing the second highest in reliability readings because skill sub-element stated is crucial for property manager practically used the knowledge and perform a certain physical and mental task according to nature of work handle for implementing effective property management. For instance, the technical skill is needed in green building management to handling energy-using

equipment and water-using equipment including it processes. The need of technical skill as to make sure manager able to control building technologies adapted likes handling energy monitoring system, electrical distribution system, HVAC systems, plumbing fixture and metering equipment (Siciliano *et. al*, 2013; Smallwood *et.al*, 2008). Furthermore, previous researcher has proof the communication skill is an essential skill in management practice (Donellan, 1998; Pheng & Lee, 1993; Poon & Brownlow, 2014) where the manager who has good communication between the parties involved in the property management practice may deliver effective exchange of massage and may avoid any misunderstanding and misinterpretation (Miller et al., 2010; Szu-Fang, 2013).

Ability element is showing the third highest in reliability readings because property managers need to used personal talent and proficiency that stated in the ability sub-elements for executing property management task. The personal talent or proficiency can get from taught, learned or enhance and sometimes getting from natural ability predisposition to the individual (Mirabile, 1997). For instances, the ability to work under pressure is essential for the property manager to emphasize service quality delivered to the building's occupants. Sometimes, in the service industry, the managerial jobs are often highly demanding, task-specific and poor task-structured makes the manager need to perform many tasks and comply with inflexible demands (Bernsen, Segers, & Tillema, 2009). Therefore, the property manager who able to work under pressure is possible to coming out with the ability in defining and solving problems in the workplace. The manager able to recognize the problem exists and solve the problem with applying and adapts information in an organized, safe and systematic way in solving the problem (Friedman & Fleishman, 1992). Moreover, teamwork is essential for people who work in the team especially in carry out property management activities. An effective teamwork in the property management team makes the work more well-organized due to members able to sharing idea and suggestions, keep others well informed on the certain situation or problems and utilized skills of members in management practice (Woodruffe, 1993). Lastly, other competencies become the lowest reliability reading. Although other characteristics have the lowest reliability reading, it doesn't show all the sub-element is not essential to the property manager. It can be added value/success factors for executing property management (Zarita *et al*., 2016). For example, leadership is the most other characteristics element adopted by the previous researcher because manager needs to lead certain organization or team (Loqman, Asmoni, & Shaari, 2017) for effective management.

VII. CONCLUSION

A preliminary study that had been conducted was intended to identify the validity and reliability on the instrument of the property manager's competencies in managing green office building before it is distributed to the actual fieldwork aspect of the study. The study also functions to identify any potential problems that may crop up in the actual study as well as to evaluate the suitability of the study questions. In the case of this study that was conducted, there has one additional knowledge element which is "innovation" and then fifty-six competencies element is tested using Cronbach Alpha. The coefficient alpha reading shows knowledge has the highest reading because knowledge sub-element is most important for property manager as knowledge-base in conducting specific task or job that needed by the property managers to ensure green office building management can be functioned as intended. The second highest in reliability reading is skill due to skill sub-element stated is crucial for property manager practically used the knowledge and perform a certain physical and mental task according to nature of work handled. Then, it followed by ability where property managers need to used personal talent and proficiency as stated in the ability sub-elements for executing successful property management task.Lastly, the other characteristic is the lowest coefficient alpha reading. Although the other characteristic is the lowest, all the sub-element is still crucial needed because it may become added value or success factor in green building management performance. In general, during the study, it was discovered that the use of instrument form to identify the behavior and reaction of the respondents towards the competencies element is effective and sensitive. It helps the researcher to make an improvement on the instrument to become reasonable and reliable to use for actual data collection on leisure study. Furthermore, instrument validity link with the study context which in the instrument is used. Hence, in the competency study aspect, it believes this study may contribute to the community of the researcher to create a tool that possesses validity and reliability for future evidence in property manager competencies. Finally, the future direction of this study is an instrumented distribution for data collection at actual field study.

REFERENCES

1. Aghili, N., Abdul Hakim, M., & Sheau-ting, L. (2016). Key Practice for Green Building Management In Malaysia. MATEC Web of Conferences, 40, 1–5.
2. Alwin, D. F. (2007). Margins of Error: A Study of Reliability of Survey Measurement. Hokoben, New Jersey: John Wiley & Sons, Inc.
3. Bennett, R., Wallace, J., & Williamson, I. (2008). Organising Land Information for Sustainable Land Administration. Land Use Policy, 25(1), 126–138. https://doi.org/10.1016/j.landusepol.2007.03.006
4. Bernsen, P., Segers, M., & Tillema, H. H. (2009). Learning Under Pressure: Learning Strategies, Workplace Climate, and Leadership Style in The Hospitality Industry. International Journal of Human Resources Development and Management, 9(4), 358.
5. Boyatzis, R. E. (1982). The Competent Manager: A Model for Effective Performance. John Wiley & Sons.
6. Brown, S. (2010). Likert Scale Examples for Surveys. Iowa State University, 1–4.
7. Chouhan, V. S., & Srivastava, S. (2014). Understanding Competencies and Competency Modeling — A Literature Survey. IOSR Journal of Business and Management, 16(1), 14–22.
8. Clark, E., & Hinxman, L. (2009). Developing A Framework of Competencies For Facilities Management. Facilities, 17(7/8), 246–252.
9. Dawes, J. (2008). Do Data Characteristics Change According to the Number of Scale Points Used? An Experiment Using 5-Point, 7-Point and 10-Point Scales. International Journal of Market Research, 50(1), 61–104.

10. Delmas, M. A., & Pekovie, S. (2012). Environmental Standards and Labor Productivity: Understanding the Mechanisms That Sustain Sustainability. Journal of Organizational Behavior, 30(8), 1151–1163. https://doi.org/10.1002/job.617
11. Donellan, J. (1998). Educational Requirements For Management-Level Positions in Shopping Centers. Journal of Shopping Center Research.
12. Friedman, L., & Fleishman, E. A. (1992). Cognitive And Interpersonal Abilities Related To The Primary Activities Of R & D Managers. Journal of Engineering and Technology Management, 9, 211–242.
13. GBI. (2017). Executive Summary of Green Building Index 2017.
14. Gurjit, S. (1996). Property Management in Malaysia. Federal Publication Sdn. Bhd.
15. Hammersley, C. H., & Tynon, J. F. (1998). Job competency analyses of the entry-level resort and commercial recreation professionals. Journal of Applied Recreation Research, 23(3), 225–41.
16. Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. CrossMark, 18(3), 66–67. https://doi.org/10.1136/eb-2015-102129
17. Hertzog, M. A. (2008). Considerations in Determining Sample Size for Pilot Studies. Research in Nursing & Health, 31(4), 341–354. https://doi.org/10.1002/nur
18. Hoffmann, T. (2008). The meanings of competency. Journal of European Industrial Training, 23(6), 275–285.
19. Howe, J. C., & Gerrard, M. B. (2012). The Law of Green Buildings: Regulatory and Legal Issues in Design, Construction, Operations, and Financing. Natural Resources & Environment, 27(2), 1–2.
20. Hwang, B., & Ng, W. J. (2013). Project Management Knowledge and Skills for Green Construction : Overcoming Challenges. International Journal of Project Management, 272–284. https://doi.org/10.1016/j.ijproman.2012.05.004
21. Izran Sarrazin, M., Nurul Nadiah, Z., Shardy, A., Neo Bee, W., & Nur Aqlima, R. (2014). Critical Factors That Lead To Green Building Operations And Maintenance Problem In Malaysia. Theoretical and Empirical Researches in Urban Management, 9(2), 68–86.
22. Johnson, G. A., & Brooks, G. P. (2010). Initial scale development: Sample size for pilot studies. Educational and Psychological Measurement, 70(3), 394–400.
23. Johns, R. (2010). Likert Items and Scales, 1(March), 1–11.
24. Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert Scale : Explored and Explained. British Journal of Applied Science & Technology, 7(4), 396–403.
25. Kay, C., & Moncarz, E. (2004). Knowledge, Skills, and Abilities for Lodging Management. Cornell Hotel and Restaurant Administration Quarterly, 45(3), 285–298.
26. Lo, K. K., Hui, E. C., & Zhang, K. V. (2014). The Benefits of Sustainable Office Buildings in the People's Republic of China (PRC): Revelation of Tenants and Property Managers. Journal of Facilities Management, 12(4), 337–352. https://doi.org/10.1108/JFM-10-2012-0048
27. Loqman, M. A. A., Asmoni, M. N. A., & Shaari, N. (2017). Exploring Competencies for Green Building Project Manager. Internal Journal of Real Estate Studies, 11(3).
28. Mansfield, R. S. (1996). Building competency models: Approaches for HR Professionals. Human Resource Management, 35(1), 7–18.
29. Mariah, A., Hakim, M. A., Maimunah, S., & Shahril, A. R. M. (2014). Requisite Facilities Management Competencies for Sustainable Development at Higher Education Institutions. Journal of Sustainability Science and Management, 9(2), 71–89.
30. McClelland, D. C. (1973). "Testing for competence rather than for 'intelligence' ": Reply. American Psychologist, 29(1), 59–59. https://doi.org/10.1037/h0038240
31. Miller, N. G., Pogue, D., Saville, J., & Tu, C. (2010). The Operations and Management of Green Buildings in the United States. Of Sustainable Real Estate, Vol. 2, No. 1, 2(1).
32. Miller, N., Pogue, D., Gough, Q., & Davis, S. (2009). Green Buildings and Productivity. The Journal of Sustainable Real Estate, 1(1), 65–89. Retrieved from
33. Mirabile, R. (1997). Everything You Wanted To Know About Competency Modelling. Training & Development, 51(8), 73–77. https://doi.org/10.1038/299285a0
34. Mohd Zaki, A., Nor' Aini, Y., & Shardy, A. (2012). Exploring Malaysia Mall Manager's KSAOs. Procedia-Social and Behavior Sciences, 62, 144–158. https://doi.org/10.1016/j.sbspro.2012.09.024
35. Mohmad, M. D., Othman, M. Y., & Syed Ahmad Qusoiri, S. A. K. (2008). Model Kompetemsi Pengurus Projek Awam: Mengenal Pasti Kompetensi Yang Kritikal Untuk Jurutera Daerah Jabatan Kerja Raya Malaysia.
36. Parry, S. B. (1996). The Quest for Competencies. Training, 33, 48–54,56.
37. Pheng, L. S., & Lee, S. H. S. (1993). The effectiveness of the Managing Agent: Property Management and Maintenance. Facilities, 11(9), 5–15.
38. Polit, D. F., & Beck, C. T. (2006). The Content Validity Index: Are You Sure You Know What's Being Reported? Critique and Recommendations. Research in Nursing & Health, 31(4), 341–354. https://doi.org/10.1002/nur
39. Poon, J., & Brownlow, M. (2014). Competency Expectations For Property Professionals In Australia. Journal of Property Investment & Finance, 32(3), 256–281.
40. Raja Mazyani, R. M., & Abdul Hakim, M. (2015). Facilities Management Relevant Competencies for Malaysian Public School. Jurnal Teknologi (Science & Engineering), 2, 73–78.
41. Rajadurai, J. (2010). Speaking English and the Malay Community: The struggle for Participation and the Negotiation of Identities. Indonesia and the Malay World, 38(111), 289–301.
42. Razali, M. N., Kamarudin, N., Zainuddin, A. Z., & Othman, S. H. (2015). Green property management for commercial buildings, 168, 133–143. https://doi.org/10.2495/SD150121
43. Revilla, M. A., Saris, W. E., & Krosnick, J. A. (2014). Choosing the Number of Categories in Agree-Disagree Scales. Sociological Methods and Research, 43(1), 73–97. https://doi.org/10.1177/0049124113509605
44. Ruban, A. (2016). Property Managers Must be More Proactive, Forum Told. Malaymail Online, pp. 1–2. Retrieved from www.themalaymailonlin.com/print/malaysia/property-managers-must-be-more-proactive-forum-told
45. Sangoseni, O., Hellman, M., & Hill, C. (2013). Development and Validation of a Questionnaire to Assess the Effect of Online Learning on Behaviors, Attitudes, and Clinical Practices of Physical Therapists in the United States Regarding Evidenced-based Clinical Practice. The Internet Journal of Allied Health Sciences and Practice, 11(2), 1–12.
46. Sekaran, U. (2003). Research Methods For Business - A Skill Building Approach (Fourth Edi). United State of America: John Wiley & Sons.
47. Shenkel, W. M. (1980). Modern Real Estate Principles (Revised ed). Irwan-Dorsey.
48. Siciliano, G., Tutterow, V., & de Los Reyes, P. (2013). Recommendations on Job-Specific Knowledge and Skill Areas for Energy Management System Implementation in Industry and Commercial Buildings: Results from a Global Superior Energy Performance Multi-Country Analysis. ACEEE Summer Study on Energy Efficiency in Industry, 1–12.
49. Smallwood, J., Sauntson, D., Short, D., Cranfield, P., & EERE. (2008). Green Building Management Toolkit. Better Building Partnership.
50. Spencer, L. M., & Spencer, S. M. (1993). Competence at Work : Models for Superior Performance. John Wiley & Sons, 1–372.
51. Syamim, J., & Aini, S. N. (2017). A Review of Property Manager ' s Competency in Managing Green Building. Malaysian Journal of Sustainable Environment (MySE), 3(2), 1–29.
52. Szu-Fang, C. (2013). Essential Skills for Leadership Effectiveness in Diverse Workplace Development. Online Journal for Workforce Education and Development, 6(1).
53. Tajuddin, A. J. A. (2015). A Malaysian Professional Communication Skills in English Framework for English for Occupational Purposes Courses. Ph.D. Thesis. The University of Nottingham.
54. Tas, R. F., Labrecque, S. V, & Clayton, H. R. (1996). Property-Management Competencies for Management Trainees, 90–96.
55. Thorncrof, M. (1965). Principles of Estate Management. London: Estate Gazette, Ltd.
56. Ulrich, D., Brockbank, W., Yeung, A. K., & Lake, D. G. (1995). Dave Ulrich, Wayne Brockbank, Arthur K. Yeung, and Dale, 34(4), 473–495.

57. Woodruffe, C. (1993). What Is Meant by a Competency? Leadership & Organization Development Journal, 14(1), 29–36. https://doi.org/10.1108/eb053651
58. Zarita, A. B., Hwa, T. K., & Sharuzaman, M. S. (2016). A Competency Framework for the Property Management Industry. Environment-Behaviour Proceedings Journal, 4(1), 27–30.