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JIRSEA: PUBLISHING POLICY

The Journal for Institutional Research in South East Asia (JIRSEA), an online journal, that is Scopus Indexed, is published electronically on a biannual basis. In 2017, a decision by the SEAAIR Executive Committee to celebrate the inclusion in the May/June JIRSEA issue of the top "Best Paper" and "Outstanding Papers" selected from the annual SEAAIR Conference by a panel of judges on-site. All publications, invited or selected, undergo the due diligence of the double blind review process by independent international reviewers. Original research papers, which have not been submitted for publication elsewhere, dealing with all aspects of institutional research, planning and related issues in tertiary education will be considered.

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Updated May 2019

Editorial

The May/June 2020 issue of JIRSEA has two main features where by the first feature showcases a "Special Invite Paper" that is co-edited by Prof. Sophia Shi-Huei Ho of University of Taipei, Taiwan. Three "Special Invite Paper" are invited and published in this May/June issue, whereby they cover key academic areas of governance spanning diversity, work environment, academia-industry mobility and internationalization strategies.

The second feature is the newly instituted "preliminary review" process to "screen out" papers before the formal double blind review process resulted in 60% of papers being declined due to relevance to JIRSEA focus of Higher Education issues or Institutional Research and those that does not meet the "sound scientifically grounded" research requirements of JIRSEA. Three papers are accepted after the rigorous and stringent vetting process. These four papers cover key academic enhance areas of the needs assessment for the improvement of English teacher education programs, developing a model for teaching beliefs and practices, and study habits leading to academic programs improvements.

The key synopsis of these six papers are as follows:

- **The first "Special Invite Paper" is contributed by Douglas R. Gress and JungCheol Shin** both of *Seoul National University,* entitled "Diversity, Work environment, and Governance participation: A study of Expatriate faculty perceptions at a Korean University". This research indicates that hiring documentation and processes need work, but that non-ethnically Korean expatriate faculty perceive more problems with promotion processes, trust at the university scale, and integration, especially in terms of communication and governance participation at the college scale. Perceptions related to personal satisfaction, professional satisfaction, isolation, and leaving the university are also explored. Results indicate an inverse relationship between thoughts of leaving and professional/personal satisfaction and department cordiality, and a positive correlation between thoughts of leaving and feelings of isolation. Based on the analyses, several recommendations are forwarded.

- **The second "Special Invite Paper" is contributed by Vincent Pang, Yew Meng Lai, Wardatul Akmam Din, and Anantha Raman Govindasamy** of *Universiti Malaysia Sabah, Malaysia* and **Norzaini Azman** of *Universiti Kebangsaan Malaysia, Malaysia*. Their paper entitled "Academia-Industry mobility in Malaysia: Realities and Implications for Leadership Development Programs" presents the current academia-industry mobility (AIM) situation in Malaysia with emphasis on the progress in the AIM agenda, factors affecting AIM, drivers of AIM, and barriers and constraints faced by AIM in the country. Key findings indicated that perceived unclear policy, slowness in responding to the needs of industry players, and guidelines related to AIM have further exacerbated what is already an unfavourable relationship between Malaysian public universities and industry with the latter remained sceptical regarding the capabilities of the former.

- **The third "Special Invite Paper" is contributed by Qian Huang and Jisun Jung** both of whom are from *The University of Hong Kong, Hong Kong*. Their paper on "Development of strategies for internationalising Chinese Higher Vocational Education" examines the historical evolution of internationalisation in Chinese HVE, analyses the current internationalisation strategies deployed by HVE institutes in China, and compares these strategies with those implemented by Chinese research universities. The results show that the internationalisation of Chinese HVE is based on strong government-driven policies and is originally based on a combination of Western models and the demands of local industry. In the process of internationalisation, Chinese HVE institutes have since implemented various additional initiatives, such as using English as the medium of instruction, recruiting international students, organising exchange programmes with overseas institutes and student internships in multinational companies, establishing branch campuses and developing curriculums to meet the requirements of international qualification frameworks. These strategies differ from those implemented by research universities in terms of their emphasis on industry collaboration, regional economic development and local labour market demands.

- **Thi Kim Anh Vo** *of University of Foreign Languages, The University of Danang***, Vincent Pang** *of Universiti Malaysia Sabah* and **Lee Kean Wah** from *University of Nottingham Malaysia* researched into a paper entitled "A needs assessment for the improvement of English teacher education programs in Vietnam". Findings reveal that generally the English Teacher Education Program (ETEP) satisfies students' needs at the medium level though some aspects of the ETEP such as soft

skill development and the process of learning how to teach need improving. They recommend that the link between practice and theory should be strengthened for a higher quality ETEP through technology integration, teaching practicum improvement, and soft skill integration.

- **Samah Ali Mohsen Mofreh** *of Universiti Sains Malaysia*, **M. Najib Ghafar** *of Universiti Tecknologi Malysia* **, Dayang Hjh Tiawa Awg Hj Hamid** *of Sultan Sharif Ali Islamic University* and **Yasmin Othman Mydin** *of Universiti Sains Malaysia* researched into the "Assessing model of teaching beliefs and practices: Using structural equation modelling". Key findings arrived at a recommended model for Lecturers' Beliefs on Teaching Functions and Lecturers' Teaching Practices among community colleges' lecturers.

- **Royce A. Salva** *of De La Salle University-Dasmariñas, Philippines* researched into a paper entitled "Study habits of Pre-service Teachers: Basis for development of Academic Enhancement Program". This study quantifies the five domains of study habits of pre-service teachers and their perceptions on the necessity of a possible remedial program, which is alternatively named as Academic Enhancement Program (AEP). The results revealed that university students in the same year level are more likely to have similar degree of study habits than when compared to their areas of specialization.

- **Tao-Ming Cheng**, **Dinesh Chandra Agrawal**, **Long-Sheng Chen and Ching-Jung Chi** *of Chaoyang University of Technology, Taiwan* and **Hsing-Yu Hou** *of National Taichung University of Science and Technology, Taiwan* researched into a paper entitled "Factors affecting starting wages of Master's degree-graduates in Taiwan". The results demonstrate that the academic system significantly influenced the wages, and the level of stable wages showed a positive relationship with job satisfaction and learning-job-congruence. Personal social networking was a significant predictor of the stable wage level. Besides, students with science, engineering, and technology background, and those worked in public sector earned higher wages than others.

JIRSEA Editor: Assoc. Prof. Teay Shawyun, Ph.D.
Invited Co-Editor: Prof. Sophia Shi-Huei Ho, Ph.D.

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“SPECIAL INVITE PAPER”

DIVERSITY, WORK ENVIRONMENT, AND GOVERNANCE PARTICIPATION: A STUDY OF EXPATRIATE FACULTY PERCEPTIONS AT A KOREAN UNIVERSITY

Douglas R. Gress and JungCheol Shin

Seoul National University, Republic of Korea

ABSTRACT

This study deploys three research questions and quantitative analyses of data obtained from an extensive diversity survey of expatriate faculty at a Korean university to analyze perceptions related to their work environments and governance participation. Analyses comparing expatriate faculty both with and without Korean ethnicity are conduced vis-à-vis institutional and power considerations. Results overall indicate that hiring documentation and processes need work, but that non-ethnically Korean expatriate faculty perceive more problems with promotion processes, trust at the university scale, and integration, especially in terms of communication and governance participation at the college scale. Perceptions related to personal satisfaction, professional satisfaction, isolation, and leaving the university are also explored. Results indicate an inverse relationship between thoughts of leaving and professional/personal satisfaction and department cordiality, and a positive correlation between thoughts of leaving and feelings of isolation. Based on the analyses, several recommendations are forwarded.

Key Words: Expatriate Academics; Diversity; Governance Participation; Korean Universities; Work Environment

Introduction

English speaking countries remain the primary hosts and major providers of international academics (see Jiang, et al., 2010; Kim, 2016; Kim & Roh, 2017). However, globalization processes impacting higher education have seen the rise of 'centers and peripheries' (Altbach, Reisberg, & Rumbly, 2009), including competing centers in East Asia and Oceana that attract mobile knowledge workers (Jöns & Hoyler, 2013). There have therefore been calls to increasingly broaden the focus to include the study of international faculty in other countries (e.g. Foote, Li, Monk, & Theobald, 2008), though even recently some authors (Altbach & Yudkevich, 2017; Bedenlier & Zawacki-Richter, 2015; Mihut, de Gayardon, & Rudt, 2017; Rumbley & de Wit, 2017) have conceded that more research needs to be done in order to better understand the complexities associated with the careers of these scholars in divergent places.

There is a burgeoning literature on international faculty working at universities outside of the North American and Western European contexts, including a growing number of Asian-based studies (Froese, 2010; 2012; Huang, 2018; Jiang, et al., 2010; Kim, 2005; Kim, 2016; Li, Yang, & Wu, 2018; Ortiga, Choe, Sondhi, & Wang, 2018; Palmer & Cho, 2012; Parnarian, Hosseinin, & Fen, 2013; Shin & Gress, 2018; Wan & Sirat, 2018; Worthington, 2000; Wu & Huang, 2018). However, in their review of the literature on international academics, Mihut, et al. (2017) found that research is tilted toward studies of short-term faculty that deployed 'personal narratives.' The present study, in contrast, focuses on *permanently* internationally-based, tenure-track faculty, or 'expatriate academics' (Trembath, 2016), much in line with other more contemporary work on the subject (see also Yudkevich, Altbach, & Rumbly, 2017).

Highlighting quantitative results from an extensive diversity survey of expatriate academics at a large South Korean university, the present effort builds upon diversity research as a crucible, further informed by considerations of institutions and power. More specifically, this study analyzes multi-faceted expatriate faculty member perceptions of their recruitment, working environments, and involvement in decision making processes at the university, college and department levels. Analyses of these perceptions are couched within institutional (e.g., rules, trust, and diversity), and power considerations (e.g., integration, participation, and influence). The contribution concludes with a look at relationships between personal and professional satisfaction, department collegiality, feelings of isolation, and the possibility of faculty leaving the case university.

This study further investigates how perceptions differ by ethnic background between non-ethnically Korean and ethnically Korean expatriate academics. Three major research questions are deployed: First, are there any differences between ethnically non-Korean expatriate faculty and ethnically Korean expatriate faculty concerning their satisfaction with hiring and promotion processes, and their perception of trust at their places of work? Second, is there differentiation between ethnically non-Korean expatriate academics and their ethnically Korean expatriate

colleagues in terms of integration and participation in decision making processes? Third, do ethnically non-Korean expatriate academics differ from ethnically Korean expatriate academics in terms of an association between workplace satisfaction, institutional cordiality, and an intention to leave?

Literature

A primary reason that studies of international academic work environments are so important revolves around diversity in the university work place (Worthington, 2012). Diversity is not always accompanied by the hiring of minority faculty. Aguirre and Martinez (2002, p. 60), for example, stated, "…that institutions of higher education can be diverse, but not inclusive of diverse communities." Indeed, diversity is a persistent challenge for many universities, often exacerbated by a 'culture of exclusion' (Brown, 2004, p. 24). At the individual level, minority faculty facing these exclusionary work environments may experience negative impacts on their careers (Cooper & Stevens 2002). At the organizational level, negative perceptions of organizational cultures and administrative processes, immediate work environments, and available support structures have been found to contribute to expatriate faculty intentions to leave (see Ambrose, Huston, & Nonnan, 2005; Callister, 2006; Barnes, Agago & Coombs, 1998; Schoepp, 2011). Concerning diversity research in general, Worthington (2012, p. 2) outlined core areas deserving attention such as recruitment and retention, intergroup relations and discourse, and non-discrimination in addition to the identity characteristics (e.g., race and ethnicity, national origin, and language use) that impact the work environments and perceptions of minority faculty and students.

As a basis for analyses, the present study builds on these considerations and follows Yudkevich, et al. (2017) as they provided more exacting topical considerations to cover vis-à-vis the study of diversity and expatriate faculty. The authors suggested examining regulations affecting hiring, promotion, and contract renewal, and expatriate faculty perceptions of these processes to include salary considerations. Finally, they welcome comparisons between expatriate faculty experiences and those of domestic faculty. In the present study comparisons are made between non-ethnically Korean expatriate faculty and ethnically Korean expatriate faculty, much in line with other contemporary studies of universities in Asia (see Huang, 2018; Paul & Long, 2016; Wu & Huang, 2018). This will be discussed in more depth in the data and methodology section.

Departmental support is seen as integral to the transition and careers of international faculty members (Collins, 2008), and departments and colleges are well positioned to empower all faculty to more actively partake in internationalization and diversity efforts (Ray & Solem, 2009). In a study of international faculty retention issues at a Malaysian university, Amir et al. (2013) found that positive departmental socialization opportunities ranked among the most influential variables explaining faculty satisfaction. Similarly, in a study undertaken by O'Meara et al. (2014, pp. 616-

617), 'lack of collegiality in unit' ranked third as a potential reason to leave. Another study of British expatriate academics (Richardson & Zikic, 2007) concluded that not being unable to form cross-cultural relationships at work may stymy the careers of these scholars. In one Korea-based study (Froese, 2012), language and cultural distance was found to negatively impact expatriate faculty ability to integrate both socially and professionally at Korean universities. More recent work done by Altbach and Yudkevich (2017) concluded that lower levels of integration are associated with low expatriate faculty work satisfaction levels, and may in turn precipitate tension with host-country faculty. While there has been work done on departments and their relationships to other departments and the macro-institutional culture (Jumper, 1984; Lee, 2007), the college scale is conspicuously absent from analyses of expatriate faculty. The present research, by way of comparison, examines perceptions related to college-level interactions in concert with both university and departmentally-related perceptions.

There are also intra-organizational considerations that may impact the careers of expatriate faculty. Trowler and Knight (2000, p. 37) concluded that higher-level initiatives may be divorced from perceptions at the more localized departmental level at which many academics operate (see also Tierney, 1988). Smart and St. John (1996) concluded that such contradictions lead to faculty dissatisfaction. The present study takes into consideration all of the preceding.

Expatriate academics are sensitive to transparency issues when they move to different societal contexts, considerations that can be couched within discussions of institutions. Bathelt and Glückler (2014, pp. 346-47) define institutions as, "…forms of ongoing and relatively stable patterns of social practice based on mutual expectations that owe their existence to either purposeful constitution or unintentional emergence." Yet given the inclusion of 'mutual expectations', and 'purposeful constitution', this necessarily begs the question of whether or not expectations and rules are available, understandable, and perceived to be fair. In the present research, expatriate faculty perceptions are examined vis-à-vis student and faculty expectations, and promotion and tenure review processes.

Trust, an informal institution, is also important as it is inherently intertwined with establishing and continuing relationships that can impact careers. Some attributes of trust include recognizing diversity, respect, and a commitment to improvement that includes accepting suggestions from multiple sources (see Yorke, 2000). These attributes are core to universities seeking to effectively implement diversity-oriented change (see Aguirre & Martinez, 2002). This also harkens back to the aforementioned intra-organizational issues that build up should there be tensions between the internationalization message being forwarded by the university and the realities impacting the everyday lives and careers of individual expatriate academics in their departments and colleges. Expatriate faculty perceptions regarding this possibility are examined, and perceptions related to diversity and trust in leadership are subsequently analyzed at the departmental, college and university levels.

Power is also an important consideration when examining diversity and the careers of expatriate academics at their places of work (Morley, et al., 2018), largely because power impacts faculty participation in governance. As a heuristic starting point, Yeung (2005, p. 45) defines 'power' as, "…the relational effects of the capacity to influence and the exercise of this capacity through actor-specific practice." Power creates the ability to influence over time, and examining it enables a picture of how actors challenge entrenched organizational behavior and institutional norms to be drawn. In this respect, the concept of 'emergent power' (Yeung 2005, p. 46) is beneficial as it, "…enhances the possibilities for actors in heterogeneous relations to engage in recursive learning and reflexivity." Power in the present study is therefore approached vis-à-vis participation, integration, and perceptions related to one's influence at both the departmental and college levels.

Data and Methodology

Expatriate faculty members at the case university numbered 110 as of 2017, or roughly five percent of the total regular tenure-track faculty members there. By way of comparison, government statistics indicate that two competing and similarly-sized private universities had 119 and 105 expatriate faculty on staff the same year (Ministry of Education, 2018). 44 percent of expatriate faculty are originally Korean-born or ethnically Korean, though they hold non-Korean citizenship or foreign residency status. Paul and Long (2016) related that there is an increasing number of such returning scholars working at universities in Asia. Recent studies, for example those by Wu and Huang (2018) and Huang (2018), differentiated between non-native expatriate academics and home-country returnees in China and Japan. Analyses in the present research similarly compare expatriate faculty both with and without Korean ethnicity. To the best of the authors' knowledge, this is the first time such a consideration has been taken into account when quantitatively analyzing expatriate faculty at a Korean university.

An in-depth survey was distributed online to all expatriate faculty at the case university between 25 October 2017 and 8 November 2017. The survey contained seventy-nine questions pertaining to 1) personal background, 2) the hiring process, 3) academic affairs, 4) administrative affairs, 5) research affairs, 6) promotion, 7) housing, education and daily life, and 8) perceptions pertaining to internationalization efforts at the case university. Table contents are actual reflections of the questions asked in the survey instrument, and questions are also presented verbatim in the body of the results section.

Institutional Review Board (IRB) approval was granted prior to the dispersal of the survey instrument, a process that insisted upon, and later verified anonymity for participants. For this reason, given the sparse number of scholars in individual departments and colleges, particularly female faculty and those in higher ranks, individual and university details are not presented.

A total of 35 non-ethnically Korean and 13 ethnically Korean expatriate faculty responses generated response rates of 62 percent and 24 percent respectively, or an overall response rate of 43 percent. Table 1 provides a breakdown of descriptive statistics for the sample. Many respondents did not proffer their rank, perhaps out of concerns related to anonymity, but the sample may be characterized as representative.

Quantitative analyses of survey data are utilized in this research. Descriptive statistics, t-tests, correlation analysis, and ANOVA are deployed to capture and compare ethnically Korean and non-ethnically Korean faculty perceptions related to aspects of their working environment unearthed in the review of the literature. Several of these aspects are examined at the department, college, and university scales to provide a better overall picture of the work environment being experienced by these scholars and their ability to engage in governance. No significant differentiation based on gender were found for any of the variables assessed, nor for the presence of absence of a Korean spouse.

Table 1: Descriptive Statistics: Expatriate Faculty at the Case University

	Ethnic Origin			Ethnic Origin	
	Non-Korean	**Korean**		**Non-Korean**	**Korean**
Rank			**Gender**		
Full Professor	5	3	Female	6	5
Associate Professor	16	7	Male	27	8
Assistant Professor	7	0			
			Marital Status		
Time Since Hire			Not married	7	4
1-3 Years	10	2	Married; Korean Spouse	7	4
4-7 Years	11	5	Married; non-Korean Spouse	18	5
>7 Years	14	5			
			Korean Language[a]		
Age			Listening	3.60 (1.12)[b]	1.31 (0.63)
<40	11	1	Speaking	3.69 (0.99)	1.31 (0.63)
40-49	16	10	Reading	3.46 (1.07)	1.38 (0.87)
50-60	6	1	Writing	3.80 (0.87)	1.54 (0.97)
>60	1	1			

Source: Survey responses; [a] Based on Likert scales (1=Very Good to 5=Inexistent); [b]Standard Deviations in parentheses

Results

Research question 1 delves into hiring, promotion, and institutions such as trust. Often not regarded in earlier work into the careers of expatriate faculty, the hiring process (inclusive of salary considerations), acknowledged to be challenging in a cross-cultural context, has now come to be

accepted as a vital piece of analysis (Altbach & Yudkevich, 2017; Mihut, et al., 2017). To the best of the author's knowledge, however, no study has explored this particular facet of expatriate academic career moves to any depth in the Korean context. Survey respondents answered on Likert scales to provide their opinion regarding the overall hiring process, documentation, communication, whether their expectations were met, this hiring process versus the process at their previous places of employment, and details about their salaries (Table 2). T-tests indicated no differences between expatriate academics with and without Korean ethnicity. While there are some positive signs in that some large percentages answered more optimistically than pessimistically to some of these questions, for example concerning the professionalism of communication and expectations being met, even these questions yielded a large percentage of respondents answering in the negative. An equal amount of information can be gleaned from both the large percentages in the 'Neutral' categories, and percentages in the 'Disagree' or 'Strongly Disagree' categories concerning the overall hiring process, the process compared to prior experience, and, most glaringly, the level of discomfort manifested from not knowing the exact salary prior to completing the contractual agreement.

Table 2: The Hiring Process: Impressions from the Expatriate Faculty Survey (%)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The hiring process was clear and went as expected	5.9%	31.4	21.6	27.5	11.8
All necessary documents were provided in English and were complete	2.0	27.5	25.5	25.5	19.6
The communication with X during the hiring process was professional	3.9	43.1	21.6	23.5	7.8
My expectations before hiring were confirmed after being hired	2.0	37.3	37.3	17.6	5.9
Compared to previous positions, X's hiring process is[a]	3.9	13.7	45.1	35.3	0.00
Not knowing the exact salary before getting hired made me uncomfortable	41.2	35.3	15.7	5.9	2.0

Source: Survey responses; [a] For this question, the Likert scale included Excellent, Good, Neutral, Below Par, Not Good.

In a smooth running system adjusted for the introduction of expatriate academics, the best-case scenario would be one in which all of the categories reflect satisfaction over and above the neutral level. A subsequent ANOVA test revealed that, contrary to what one might expect, the amount of *dis*satisfaction with the hiring process *decreased* with the length of employment at the university (3.625, 0.04). It remains to be seen exactly why this would be the case. It could be, for example, that those with longer tenures have either forgotten or minimized their travails to a larger extent

given their longer period of acculturalization, or, in a worst-case scenario, that the university has actually backpedaled in its ability to smoothly engage in the hiring of expatriate faculty and to meet their expectations for this process. This could be negatively compounded by the case university's ongoing effort to hire more expatriate faculty, an important consideration when examining the work environment for expatriate faculty (Yudkevich, et al., 2017). When asked if sufficient efforts were being made in this regard, fully 76.5 percent of respondents answered in the negative, with only four percent answering in the affirmative. Further, when asked if the case university's institutions are supportive of expatriate faculty, only two percent of respondents strongly agreed and 17.6 percent agreed, with 33.8 percent disagreeing and 11.8 percent strongly disagreeing (35.3 percent answered 'Neutral'). A t-test confirmed no difference in means for expatriate faculty with and without Korean ethnicity for either of these variables (-0.22, 0.83 and -1.14, 0.26 respectively).

Along with the problems associated with documentation unearthed by the survey results, this also helps to explain the huge amount of dissatisfaction with the salary issue. The actual hiring process begins at the departmental scale, after which application packets for recommended candidates are processed at the university level. Individual departments and colleges then make the final hiring recommendation and the university either approves or declines it. Salaries are formulated based on an antiquated and complicated system by central financial administration (Case University, Office of International Faculty Liaison, 2013), so even if the decision is made to *administratively* hire an individual scholar, while a guestimate can be provided, no actual solid salary information is usually available until after a decision has been reached. Often enough, scholars are required to sign a contract with no specified salary.

Next, Table 3 presents the results of survey response analyses regarding institutions and rules directly impacting the expatriate faculty working environment. Immediately evident is that expatriate faculty leaned toward disagreeing with statements concerning the availability and understandability of university-level rules regarding students, and rules and regulations regarding faculty at the department, college, and university levels. These rules include guidelines regarding service. Statistically, differences emerged between ethnically Korean and non-ethnically Korean faculty where promotion is concerned. Concerning overall rules and regulations being clear and available, non-ethnically Korean expatriate faculty leaned toward disagreeing, while their ethnically Korean colleagues leaned toward agreeing. Opinions also diverged where the perceived presence of unwritten regulations for promotion were concerned at the department, college (weaker at the .10 level) and university scales; non-ethnically Korean expatriate faculty agreed that these existed, while their ethnically Korean counterparts disagreed. It is no surprise, therefore, that ethnically Korean expatriate faculty leaned toward agreeing that the promotion process is fair and transparent, while non-ethnically Korean expatriate faculty disagreed, akin to expatriate faculty perceptions voiced in Palmer and Cho (2012) and expatriate faculty perceptions at a Malaysian university concerning contract renewal (Wan & Sirat, 2018).

As there were statistically significant differences in Korean language ability (see Table 1), this may be explained in part by the fact that ethnically Korean expatriate faculty may have been able to avail themselves of codified handbooks on the one hand, while having been able to access tacitly known codicils via their Korean colleagues on the other. In another Korea-based case (Froese, 2010), the scholar, writing autobiographically, was supplied with information by his Korean colleagues, but asked not to share it with other non-ethnically Korean faculty members. It should be noted in all fairness, however, that at the time of the data acquisition effort, the university's faculty handbook had not been translated into English and disseminated; as of the writing of this article it had, so follow up research would be required to see if this has an impact on expatriate faculty perceptions.

Table 3: Institutions and Rules: Work Environment Perceptions of Expatriate Faculty

		Ethnic Origin			
		Non-Korean	**Korean**	***T* Statistic**	***P* Value**
Rules and regulations regarding students[a] are readily available in English and understandable		4.00 (0.92)[b]	3.75 (1.04)	-0.67	0.51
Rules and regulations regarding faculty are readily available in English and understandable	Department	3.75 (1.14)	3.89 (1.17)	0.32	0.75
	College	3.94 (0.97)	3.44 (1.24)	-1.28	0.21
	University	3.67 (1.12)	3.00 (1.23)	-1.57	0.13
Rules and regulations for promotion are clear and readily available		3.53 (1.08)	2.08 (.641)	-4.54	0.00
The promotion process is fair and transparent		3.38 (0.78)	2.38 (0.65)	-4.10	0.00
There seem to be "unwritten" requirements for promotion that I am/was not aware	Department	2.60 (1.22)	3.70 (1.25)	2.45	0.02
	College	2.75 (1.18)	3.56 (1.01)	1.84	0.07
	University	2.29 (0.90)	3.67 (1.00)	3.72	0.00

Source: Survey responses [a] Description included: graduation requirements and grading rules; [b] Based on Likert scales; 1=Strongly Agree to 5=Strongly Disagree; Standard Deviations in parentheses

Continuity, diversity and trust are addressed next, again shedding light on faculty perceptions of diversity and their working environments. According to respondent input (see Table 4) both groups of expatriate faculty leaned toward disagreeing that there was continuity between the university's communicated internationalization efforts and what they were experiencing in their everyday work lives, though non-ethnically Korean expatriate faculty disagreed more strongly. In terms of recognizing the importance of diversity, there was statistically a more pronounced difference at the university scale; non-ethnically Korean expatriate faculty disagreed that they and the university agreed on the importance of diversity. This was also true where trust in leadership was concerned.

In general, both groups of faculty were more trusting of their departmental and college leadership, and only diverged in opinions concerning the university scale; non-ethnically Korean expatriate faculty leaned toward distrusting university-level leadership, while ethnically Korean expatriate faculty leaned toward trusting it. Though interviews would be necessary to verify it, this may be because ethnically-Korean expatriate faculty are identifying more with their Korean colleagues. Korean is a high context language, so a large amount of meaning comes from commonly understood, often unspoken pretexts, and a schism between 'insiders' and 'outsiders' is prevalent (see Hall, 1981, p. 113).

Table 4: Institutions - Continuity, Diversity, and Trust: Work Environment Perceptions of Expatriate Faculty

		Ethnic Origin			
		Non-Korean	**Korean**	***T* Statistic**	***P* Value**
There is continuity between the university's communicated internationalization efforts and what I am experiencing in my everyday life.		4.03 (0.76)[a]	3.46 (0.98)	-2.13	0.04
University leaders and international faculty agree on the extent to which diversity is important	Department	3.06 (1.22)	2.77 (1.17)	-0.74	0.47
	College	3.15 (0.86)	2.69 (0.75)	-1.68	1.00
	University	3.79 (0.77)	2.92 (0.95)	-3.25	0.00
I can trust my leadership when it comes to issues impacting my career	Department	2.63 (1.07)	2.46 (0.88)	-0.49	0.63
	College	2.79 (0.86)	2.85 (0.69)	0.22	0.83
	University	3.39 (0.90)	2.77 (0.60)	-2.03	0.03

Source: Survey responses[; a] Based on Likert scales; 1=Strongly Agree to 5=Strongly Disagree; Standard Deviations in parentheses

Research question 2 addresses integration, participation, power and recursive learning. In order to learn, to influence, and to enact change within an organization, it stands to reason that one first must be present. Table 5 reports findings related to power in terms of integration, participation, and recursive learning. Respondents in both groups (no *Chi-square* difference) reported attending departmental meetings quite regularly. There was a lower percentage of participation for college-level meetings, but that may have merely been the result of scheduling conflicts. As such, college-level interaction is examined via other variables. For example, both groups reported being well-integrated into their departments and colleges, and both groups participated in both departmental and college-level official functions (e.g., colloquiums and dinners).

Table 5: Power, Integration, and Participation: Expatriate Faculty Perceptions

		Ethnic Origin						-
		Non-Korean			Korean			
Integration and Participation		Y[a]	N	D	Y	N	D	
If I am available, I participate regularly in meetings.	Department	83%	3%	11%	92%	0%	8%	
	College	60%	0%	37%	46%	23%	31%	

				T Statistic	*P* Value
I am well integrated in my department/college		2.49 (0.92)[b]	2.00 (0.82)	-1.67	0.10.
How often do you participate in official functions?[c]	Department	1.63 (0.60)	2.08 (0.50)	2.41	0.02
	College	2.67 (1.02)	2.92 (0.95)	0.78	0.44
Power and Recursive Learning					
Faculty meetings are regularly held in a language I can understand.	Department	3.21 (1.37)[d]	2.08 (0.76)	-2.81	0.01
	College	3.50 (1.40)	2.31 (0.95)	-2.83	0.01
Compared to my Korean colleagues, I often feel uninformed about…affairs.	Department	2.35 (1.19)	3.31 (0.94)	2.61	0.01
	College	1.94 (0.97)	3.38 (1.04)	4.49	0.00
My voice/opinion has weight in my…	Department	2.91 (1.08)	2.46 (0.78)	-1.37	0.18
	College	3.51 (0.92)	3.00 (0.82)	-1.77	0.08

Source: Survey responses; [a] Y=Yes, N=No, D=Depends; [b] Based on Likert scales (1=Strongly Agree to 5=Strongly Disagree); Standard Deviations in parentheses; [c] (1=Always to 5=Never); [d] (1=Strongly Agree to 5=Strongly Disagree)

Emergent power, however, has to do with opportunities for recursive learning, and to accomplish this, communication is vital. Despite the fact that Korean fluency was not a stipulated hiring prerequisite, however, participating in governance at the case university may not be easy without Korean fluency (see Shin & Gress, 2018). It is interesting to note, therefore, that more non-ethnically Korean expatriate faculty than their ethnically Korean colleagues reported attending college-level meetings despite a markedly inferior level of Korean language skills (see Table 1). Still, at 60 percent and 46 percent respectively, the turnouts are not as high as one may have expected given the importance of the college scale to overall decision making at the case university. Language was apparently a detractor in this regard. Non-ethnically Korean expatriate faculty leaned toward disagreeing on the issue of both departmental and college meetings being held in a language they could understand, while they tended to agree that they felt uninformed compared to the native Korean faculty; neither of these presented an issue for the ethnically Korean expatriate faculty. At the college level, however, rank emerged as a possible consideration. An ANOVA test revealed (3.29, 0.04) that the higher the rank, the less non-ethnically Korean expatriate faculty felt uninformed about college-level affairs. Still, even tenured Full Professors

registered an overall neutral response, with those at the Associate and Assistant Professor levels registering significantly more negative perceptions.

Recalling that trust is more pervasive at the departmental than college level, it should come as no surprise that both groups reported their opinion having more weight in their respective departments. At the college level, there was a weak statistical difference between groups, with ethnically Korean expatriate faculty registering neutral, while their non-ethnically Korean counterparts leaned toward disagreeing. Results suggested that in the previous question concerning integration, respondents were answering based on their departmental experience. This, however, is only conjecture, so interviews would be necessary to confirm or deny this possibility. In the end, however, results suggest that non-ethnically Korean expatriate faculty were somewhat less well-situated to enact change at their places of work than their ethnically Korean counterparts, particularly at the college level.

Several studies on Korean universities ventured pessimistic conclusions with regards to expatriate faculty integration, participation, and influence (Froese, 2010; 2016; Kim, 2005; Palmer & Cho, 2012). Kim (2016), in her one-university study, described a sort of revolving door situation, where expatriate faculty came to a Korean university to work, became disgruntled, left, and were replaced by new hires while the university did little to alter its organizational culture to integrate them. In the present study, there was a negative perception of the case university's efforts to hire more expatriate faculty. But are expatriate faculty thinking of leaving sooner than expected? There was, after all, concern among senior managers at the case university that expatriate academics may simply leave the case university for a better job once they build up their research records (see Shin & Gress, 2018). Based on a review of the previously discussed literature, expatriate faculty may leave because of personal and professional satisfaction issues, to include cordiality at work and feelings of isolation. Analyses conclude with RQ3 and a look at these issues.

Table 6 shows the means, the standard deviations and the results of the correlation analysis. T-tests indicated no differences between ethnically non-Korean and ethnically Korean faculty for these variables. There are some positive signs in that faculty leaned toward both personal and professional satisfaction and that department cordiality was perceived in a positive light. However, all three of these variables had fairly high standard deviations, while feelings of isolation and thoughts about leaving sooner were perceived to be stronger. As in other studies, there was an inverse relationship between thoughts of leaving and professional/personal satisfaction and department cordiality, and a positive correlation between thoughts of leaving and feelings of isolation. Feelings of isolation, in turn, strongly positively correlated to both personal and professional satisfaction (also correlated to each other). Respondents also had the opportunity to fill in an open-response question, "If I were to leave _____, it would be because of _____." Answers (30 respondents in all) predominantly revolved around 1) language barriers, 2) limited leadership opportunities or problems with integration at the department level, 3) promotion and

tenure issues, 4) dissatisfaction with the pace of the internationalization efforts, and 5) family and child welfare (education, spousal employment). Numbers one through four are largely reflective of the quantitative results presented thus far. In short, should the university wish to avoid the revolving door situation described by Kim (2016), it needs to address these issues, along with hiring-related issues sooner rather than later.

Table 6: Correlations: Work place satisfaction, cordiality, isolation, and leaving

		Mean	SD	1	2	3	4	5
	Professional Satisfaction[a]	2.37	0.77	1.00	0.57**	0.40**	-0.39**	-0.48**
	Personal Satisfaction	2.55	0.81		1.00	0.39**	-0.43**	-0.34**
	Cordiality[b]	2.10	1.09			1.00	-0.15	-0.28*
	Isolation[c]	2.92	1.07				1.00	-0.28*
	Might leave sooner	3.29	1.00					1.00

Source: Faculty survey; *P<.01; **P<.05; [a]1=Extremely Satisfied to 5=Extremely Dissatisfied; [b]1=Very High to 5=Very Low; [c]1=Strongly Agree to 5=Strongly Disagree

Discussion

Recommendations based on the preceding analyses may be forwarded. First and foremost, the hiring drive must continue in earnest. We know that any successful drive toward the globalization of world-class universities must encompass the *continuous* recruitment and retention of minority faculty (Chun & Evans, 2009), but expatriate faculty did not believe this to be the case. Directly related to this, results indicated that the university needs to improve the overall hiring process, particularly with reference to documentation and the timely supply of salary information. Once hired, the availability of rules regarding students and faculty need to be better codified in both Korean and English, and made available to all incoming expatriate faculty.

A review of documentation from the case university revealed that it did not pursue change to its administrative systems or academic culture to accommodate the large-scale hiring of expatriate academics (Case University, Office of International Faculty Liaison, 2013). Rules and processes governing promotion need to be more concretely codified and disseminated in English for those without a Korean language fluency. In the end, promotion and tenure processes need to be transparent and well-articulated, both via formal and informal communications, for all faculty (Tierney, 1997; Tierney & Rhodes, 1993). Expatriate scholars leave because they perceive a low level of potential to integrate, and because of a perceived low chance of advancement (O'Meara, Lounder, & Campbell, 2014).

A lot of other difficulties may be ascribed to language issues as well, but, again, a working knowledge of Korean was not a pre-requisite for employment at the case university (see Shin & Gress, 2018). Provisions need to be made for those without a Korean fluency to participate in meetings, engage in higher levels of governance (e.g. at the college level), and to stay informed. Assigning formal mentors at the department level, along with hiring at least one full-time, bi-lingual administrative assistant at each college dedicated solely to expatriate faculty assistance would help in these regards. These staff members could potentially coordinate and improve the consistency of expatriate faculty services university-wide. Over the longer term, like universities in other systems (e.g., in Israel, Japan, and Norway), the case university could make learning the language a pre-requisite for continual employment, but assistance will still be required. In short, the university needs to make up its mind on the language issue, it needs to bolster trust in its senior administrative levels, and it needs to better and more systemically execute its vision for internationalization and diversity going forward.

Concluding Remarks

This research adds to a burgeoning literature on expatriate academics and diversity in a non-Western context. Building from the diversity literature, the perceptions of expatriate faculty both with and without Korean ethnicity concerning their working environment and their ability to participate in governance were analyzed vis-à-vis institutional (e.g., rules, trust, and diversity), and power considerations (e.g., integration, participation, and influence) across the university, college and departmental scales.

In general, results were reflective of findings from other studies of expatriate faculty at Korean universities with one important caveat; findings for integration, participation and influence were more pessimistic for non-ethnically Korean expatriate faculty. Hiring documentation and processes need work, but non-ethnically Korean expatriate faculty perceived more problems with transparency (promotion rules and processes), trust at the university scale, and integration with the system as it stood, especially in terms of communication, information flow, and governance participation at the college scale. Based on the analyses, several recommendations were therefore forwarded.

The limitations of the study include the fact that despite the fairly high response rate, not all expatriate faculty were represented by the data gathered. Also, follow up interviews would have helped to flush out intricacies associated with trust, power issues, and language and participation. Further, this is merely a one-university case study, though the case university employs significant numbers of expatriate academics. Much as in Kim (2016), it is hoped that evidence from this one-university study may help to inform the hiring and organizational change processes at other universities in Korea.

A future comparative study deploying the suggested framework would help to understand whether or not differences exist based on the macro-Korean culture or the organizational cultures of the universities under study. It would be interesting to see, for example, if the trends between ethnically Korean and non-ethnically Korean faculty unearthed in the present study are representative across universities in Korea, both national and private alike. Building in part on the present research, a country-wide study of expatriate faculty working at all Korean universities is currently underway. It is hoped that this and other research being done on expatriate faculty working at universities globally will help to build out our understanding of diversity issues, work environments, governance participation, and other pertinent facets of the careers of these scholars at their places of work.

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"SPECIAL INVITE PAPER"

ACADEMIA-INDUSTRY MOBILITY IN MALAYSIA: REALITIES AND IMPLICATIONS FOR LEADERSHIP DEVELOPMENT PROGRAMS

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ABSTRACT

This article presents the current academia-industry mobility (AIM) situation in Malaysia with emphasis on the progress in the AIM agenda, factors affecting AIM, drivers of AIM, and barriers and constraints faced by AIM in the country. Using qualitative methods, 29 research participants consisting of university top management members, leaders of university-industry relations office, key industry players and lectures took part in the qualitative study. Main findings indicated that perceived unclear policy and guidelines related to AIM have further exacerbated what is already an unfavourable relationship between Malaysian public universities and industry players. Malaysian public universities were found to be slow in responding to the needs of industry players, whilst at the same time, the latter remained skeptical regarding the capabilities of the former. This article concludes by proposing a leadership development program framework that addresses AIM issues.

Keywords: academia-industry mobility; leadership development program; professional development program; Triple Helix; Malaysia

Introduction

Academia-industry mobility (AIM) is an important dimension that facilitates academia-industry collaboration/partnership or the more comprehensive concepts of 'Triple Helix' (academia-industry-government) and 'Quadruple Helix' (academia-industry-government-society). The scope of work in AIM involves particular activities, tasks, and interfaces related to the respective academia-industry placement schemes, which are mutually inclusive and beneficial to the participating sectors such as; training, consultancy, and advisory work, as well as research, development, innovation, and commercialization. Academic mobility and placement in the industry are as fashionable as it is valuable, insofar as it facilitates not only knowledge creation, sharing and transfer, but also promotes cross-sectoral fertilization of knowledge, skills, practice, application, expertise, and know-how, notably between higher education institutions and the industry. Similarly, AIM provides the opportunity for the transfer of practical knowledge and real-world experience as well as the latest trends from the industry to the university, which not only enriches student learning experience but equally, facilitates the exchange of expertise and experiences between academics and their industry counterparts. Briefly, AIM is useful to the participating sectors and the economy as it contributes both directly and indirectly to human capital development, research and innovation advancement, and turning brain drain into other possibilities such as "brain gain" and "brain circulation" (Robertson, 2009).

However, despite the introduction of policies and mechanisms to promote AIM in the Malaysian context, the related outcomes remain much to be desired. From a World Bank-Talent Corporation study, industrial collaboration with universities remains relatively limited. For example, 50% of companies have no structured internship programs, while 53% have never worked with university career centers, and less than 10% have experience in developing curricula or academic programs with universities. The same report also presents some realities that may be related to AIM in Malaysia: 90% of the companies feel more practical training should be provided for graduates, while 80% think the university curricula is not reflective of the current realities, and 81% rate communication skills as the major skill deficit in Malaysian graduates (Bank Negara Malaysia, 2017). Therefore, this paper addresses the apparent lack of progress in the AIM agenda, which is still in its infancy. This is done by ascertaining and comprehending the factors affecting AIM as well as its drivers in the Malaysian context, followed by an explication of the correlated barriers and constraints that hinder the progress of AIM. The "lack of progress" of AIM in the Malaysian context is inexorably linked to the barriers and constraints faced by the stakeholders in the "Triple/Quadruple Helix". Meanwhile, ascertaining both the generic and sui generis factors and drivers of AIM helps shed light on these barriers and constraints that hinder the progress of AIM in Malaysia. Consequently, this paper proposes a framework for professional development programs to enhance AIM in Malaysia

AIM in the Malaysian context

The definitions, concepts, attributes and nature of AIM in the Malaysian context are relatively similar and reflective of the global trend. In a concerted effort to enhance academia-industry collaboration, the Ministry of Higher Education (MoHE) Malaysia has come up with the Enhancement Plan of Strategic University-Industry/Community Collaboration in 2010, which stresses on universities to strategically engage with the industry via the re-alignment and (re-)focusing of its direction, as well as in terms of implementation, growth and sustainability of strategic collaborative activities (MoHE, 2013). A ministerial guideline on academia-industry placement for academic staff in public higher education institutions was subsequently launched to support the implementation of the said academia-industry collaboration enhancement plan. The guideline defines placement in the industry, non-governmental organisations, and government agencies as a capacity building scheme for academic staff, which is meant to provide a platform for staff to fulfil specific professional needs in their respective fields; furnish opportunities for knowledge and technology transfer and/or exchange; and increase and expand their experience for the purpose of producing more effective teaching and research that meets the requirements of the industry (MoHE, 2012a). The guideline stipulates four categories of placement schemes, namely: placement for professional recognition; placement for research/consultancy/work experience in the industry/ non-governmental organizations/government agencies; placement for community/society work/service; and placement as volunteers in humanitarian assistance and disaster relief operations/programs.

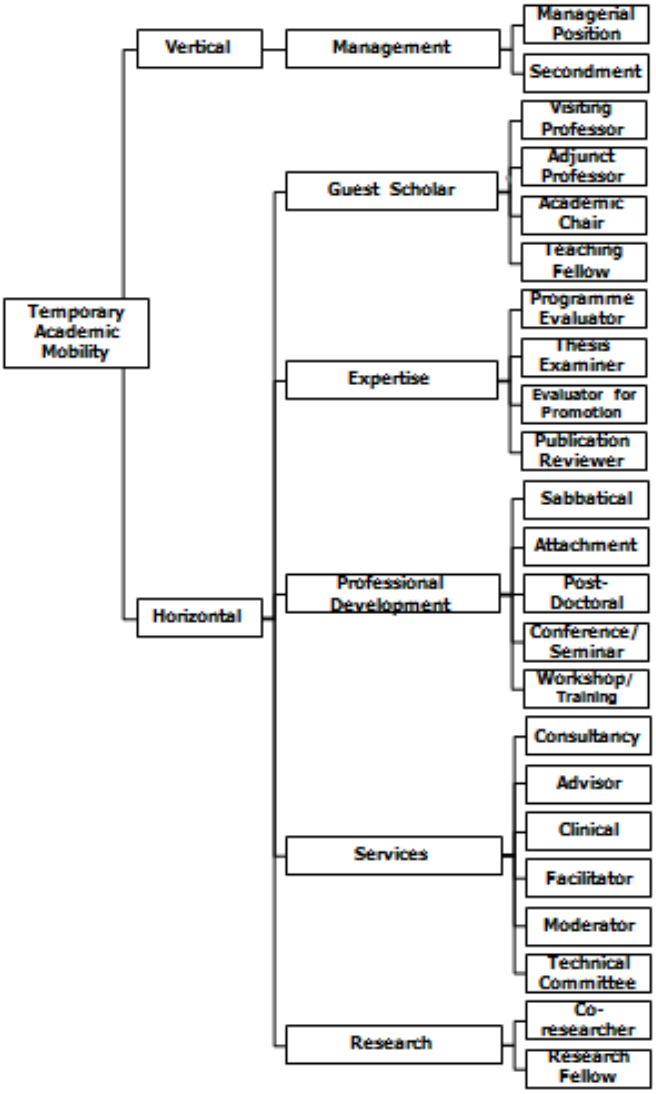
To further facilitate academia-industry collaboration, the MoHE has ascertained five areas of collaboration, namely graduate employability, research and development, commercialisation, innovation, and consultancy, where mobility opportunities are available for both academic staff and industry personnel. A good example can be seen in the context of graduate employability, where reciprocal mobility opportunities for both short and long-term are available in the form of participation of either or both academia and industry personnel in a host of tailor-made programs, such as the Industry Centre of Excellence (ICoE), Industry Engagement Zone (Ind-E-Zone), industry-university corporate social responsibility (CSR), professional examination, Bridging-the-Gap, and Entrepreneurship programs, apart from appointment to the positions of adjunct lecturers/professors or associate fellows, and involvement in activities such as industry-led curriculum design and delivery, as well as talks, coaching and mentoring (MoHE, 2013).

Although the ministerial guideline on AIM focuses exclusively on mobility of academics to the industry, the MoHE has equally implemented a number of strategies to facilitate mobility of industry personnel to the universities, which include those mentioned above. The *MyPhD Industri* program has likewise been introduced, which unlike traditional doctoral research, is specifically designed to encourage industry personnel to enroll as doctoral candidates in universities, where

they are expected to pursue industry focused projects relevant to the needs and activities of their respective organizations. Funding is provided to candidates for the *MyPhD Industri* program, where as many as 100 grants were allocated in 2013, as a means towards achieving the MoHE target of producing 500 industrial PhD holders by 2015 (Azman, Sirat & Pang, 2016).

Additionally, AIM in Malaysia includes the concept of 'secondment', where academic staff may be placed, transferred, or go 'on loan' to the industry for a specific period of time, sometimes, with an option for a permanent transfer, usually for the purpose of utilizing and optimizing their knowledge, skills, expertise, and experience to address both general and specific needs of the recipient organization. Indeed, it is not uncommon for academics from Malaysian public universities to be 'seconded' to ministries, government agencies, departments and research institutes, as well as government-affiliated organizations, where their expertise is deemed necessary to meet the human resource requirement of these public entities, besides enhancing collaboration and knowledge/skill-sharing between academia and the government as part of the concept of 'triple/quadruple helix' relationship. AIM in the guise of secondment to government research institutes is especially beneficial towards enhancing academia-industry collaboration, since they are essentially established to promote development of specific industries that contribute to the national economy (MoHE, 2013).

AIM in Malaysia also involves the participation of academic staff/researchers in collaborative and/or contract research with their industrial counterparts, as well as in the aspects of the operation and/or management of Research, Development, Innovation (RDI), and Commercialization (RDI&C) start-ups. The platforms for such academia-industry interactions commonly include R&D centres of excellence (CoE), laboratories, and likewise, specifically designated and purpose-built sites, such as science and technology parks, and business incubators located either in academia or industry, or at a neutral venue. The Putra Science Park and Sains@USM set up by Universiti Putra Malaysia (UPM) and Universiti Sains Malaysia (USM) are noteworthy examples that facilitate inter-sectoral mobility for the purpose of enhancing collaboration in RDI&C and RDI and Entrepreneurship, respectively (MoHE, 2013). Apart from collaborative/contract research work, AIM participants may also be engaged in other research related positions, such as appointment of academic staff as associate research fellows in both government-sponsored and private, non-profit research organizations/think-tanks. The nature of work and activities involved in AIM can be best summarized using the listing of the academic mobility activities by Komoo, Amir and Harun (2015), which divides them into six categories of work, namely management, visiting scholar, expertise, professional development, services, and research (see Figure 1.).



Source: Komoo, Amir & Harun (2015, p. 62)

Figure 1. Mechanism and Activities of Academic Mobility

Conceptual framework and model of AIM in Malaysia

In view of the importance of AIM, and the constraints and barriers hampering its progress in Malaysia, it is essential for the stakeholders of the so-called 'triple-helix' and 'quadruple-helix' relationship to come up with more adequate policies and strategies to address the highlighted shortcomings. There is, indeed, a need to conceptualise an AIM framework, which not only caters for more substantive interactions and cooperation between stakeholders in government, industry, and academia. Furthermore, this framework could equally represent one which involves, and ties in, more potent strategies that could effectively translate the available policies on academia-industry collaboration and AIM into actions that could bring about the desired outcomes. More specifically, the framework has to be able to bridge the gap between academia and industry through

the creation of a fertile academia-industry ecosystem relationship, where inter-sectoral mobility becomes seamless and second nature. This includes the provision of governance, as well as incentive and reward systems, among others, that fosters an academia-industry environment conducive for mobility, and even training (i.e. programs and modules) that serve to facilitate the creation of a talent pool of 'industry-friendly and knowledgeable' academics amenable to the idea and practice of AIM.

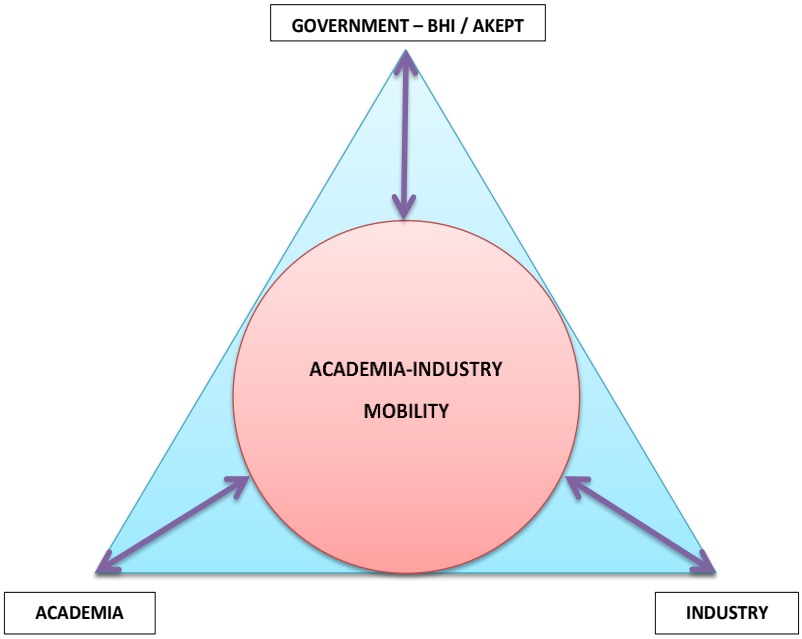


Figure 2: Conceptual framework of AIM in Malaysia.

This study therefore introduces a modest AIM framework based on the "Triple Helix" model to conceptualise the respective roles of the various stakeholders in facilitating the agenda of academia-industry collaboration in general, and AIM, particularly. Figure 2 above outlines the framework, which provides the context of AIM in Malaysia. The model illustrates the synergistic relationship and interactions between the principal stakeholders of the 'triple-helix', namely academia, industry and the government, and the roles they play in fostering an environment conducive for AIM. The government is represented in the model by two key actors, which are not only responsible for, but have the capacity and capability to address the various barriers and constraints of AIM highlighted earlier. The Industrial Relations Division (*Bahagian Hubungan Industri* - BHI) of MoHE is the actor within the government entrusted to promote academia-industry collaboration, while the National Higher Education Leadership Academy (*Akademi Kepimpinan Pengajian Tinggi Malaysia* – AKEPT) generally serves as a training centre for the advancement of higher education in Malaysia. On the other hand, the public (as well as private)

higher education institutions are the actors representing academia, while the various organisations as defined in the study constitute industry in the framework.

This framework specifically emphasises the important and mutually reinforcing roles in which BHI and AKEPT can and should undertake to help 'bridge the gap' between the universities and industry as a means to facilitate AIM. The BHI's role would be essentially to provide the governance necessary to foster the all-important positive environment, such as introducing effective policies, strategies and regulatory framework that not only serve to improve the linkage between academia and industry, but equally encourage the participation of their workforce in inter-sectoral mobility. Furthermore, AKEPT, which traditionally conducts training courses and modules in areas like teaching and learning, research and innovation, publication, leadership, may find itself playing an important 'new' role in promoting the AIM agenda. More precisely, the framework calls for AKEPT to address the issue of how it can assist in creating a talent pool of industry-friendly and knowledgeable academics via the introduction of specific training modules, which befits the Academy's very own vision, mission and *raison d'etre*.

Method

The field data was collected from three focus group interviews and ten in-depth interviews with respondents who were purposefully sampled across universities and industries. A total of 29 respondents participated in the two categories of interview, representing a diversity of experience and perspectives from AIM key stakeholders – academia, industry and government. Focus group interviews based on semi-structured questions involved seven top officials from the industry liaison office of public universities, a head of industry liaison office of a private university, seven academics from public universities and three senior officers from the MoHE, who were involved in community engagement activities. Three focus group interviews were conducted at different locations to suit the convenience of the respondents. Each of these interviews was facilitated by a senior researcher and assisted by other team members. In-depth interviews with semi-structured questions were conducted with four top officials from the community and industrial engagement portfolios (one deputy vice-chancellor of a public university, three heads of industry liaison office of private universities), two members of university board of directors, a director of a division in MoHE and, four industry representatives from professional bodies (Banking, Accounting, Engineering, and Business Management). The in-depth interviews were conducted in the respective offices of the respondents, except for that with the MoHE division director, which was conducted in an airport lounge based on his request.

The interviews, which took approximately one to two hours, comprised five sub-themes, and were based an eight-item protocol of factors that constrain or impede AIM. The first sub-theme consisted of general questions that were meant to encourage interview and focus group respondents

to openly share their views on the scope, definitions, issues and current situation of AIM. This was followed by four other sub-themes comprising specific items that essentially focused on the factors (both internal and external), drivers, barriers and constraints of AIM, as well as policy recommendations. Meanwhile, the eight-item protocol of factors included gender, age, academic rank, previous experience in AIM, peer motivation/pressure, field of discipline, personal network, and location of academic institution, all of which were deemed to have the propensity to affect AIM.

Prior to the interviews, the respondents were briefed on the research project and aims of the interview, asked for consent and the consent forms duly signed. The interviews were digitally recorded, transcribed and analysed based on content analysis. Source triangulation method was used to validate the findings. The data analysis focused on three areas: Factors affecting AIM, drivers of AIM, and barriers and constraints of AIM.

Whilst the research team tried its best to conduct this research in the best possible manner, two limitations were encountered in the process. One of which involved the participation from the industrial sector. The team invited respondents from all major industries, but only four industries agreed to take part in the study. Secondly, as most of the research team members are quite involved with AIM policy and practices in Malaysia, it is possible that their familiarity may influence the way in which the findings were generated from the data. However, before the finalisation of the research report, the research team received the endorsement from the funder of the project (AKEPT) after the presentation of the methodology and findings.

Findings and discussion

The findings addressing the factors, drivers, barriers and constraints of AIM in Malaysia are as follows:

(a) Factors affecting AIM

The data analysis results show that factors affecting AIM are interdependency in terms of resources in the context of AIM, organizational culture and AIM, organizational strategy and AIM, organizational structure and AIM, and organizational trust and AIM. These factors are elaborated in the following sub-sections.

(i) Interdependency in terms of resources in the context of AIM in Malaysia

Generally, the respondents reiterated that the Malaysian public universities are not dependent on industry for resources, and similarly, the industry is not dependent on Malaysian universities to increase its productivity. In most cases, Malaysian universities do not have the urgency to explore

new sources of funding, as is the case with their counterparts in the West. This is mainly because Malaysian universities receive substantial annual financial allocations from the government to provide funding for research and infrastructure development. On the other hand, industry players in Malaysia felt generally that substantial investment in Malaysian universities is necessary to jointly develop products and services. However, this is considered a long way off as there is a perception that investment in Malaysian universities is a huge risk, or that the knowledge and technological know-how among academics is not at par with the expectations of global industry.

Developing the discussion on resource interdependency further, Malaysian public university academics felt generally that they are part of the Malaysian civil service and therefore by being a civil servant there is a limitation on how academics should cooperate with Malaysian industry players. Accordingly, their relationship with the industry has been generally limited to undertaking consultancy work, which was deemed sufficient for their own benefit and academic promotions. Some even concluded that consultancy work represents AIM, which is a very narrow view of what AIM typically represents.

(ii) Organizational culture and AIM

Organizational culture plays an important part in the development of AIM in many countries. Interviews with industrial experts indicated that there is a perception among Malaysian industry players that the organizational culture in Malaysian public universities is very rigid, thus making it difficult for these universities to adapt to global change in the many forms that have taken place.

Conversely, academics contested this view and felt that the existing organizational culture in Malaysian universities is able to absorb and change according to the needs of globalization. Instead, they blamed the industry's organizational culture for the slow pace in the development of AIM in Malaysia. However, industry players argued that Malaysian universities are not ready to accept, operate and adapt to their organizational culture as they speak different languages, live and work in a totally different environment, and more importantly, have different goals. For example, a representative from the Malaysian banking industry noted during an interview that organisational culture is key to why industry is not able to work with universities, and more importantly the respondent argued that the mentality and work behaviour in public universities are totally different from the banking industry environment.

(iii) Organizational strategy and AIM

In the Malaysian context, the harmonization of organizational strategy between universities and industry is very much in the planning stage and to some extent there is no clear exchange of ideas or deliberation and negotiation regarding the formation of a common organizational strategy. This has led both parties in academia and industry to apportion blame to each other for the lack of progress made in developing AIM in Malaysia. However, in reality, both have entrenched

positions on their respective organizational strategies, with just a few exceptions mainly in the transfer of ideas, technology application and human resources management.

Interestingly, the interview data with industry players shows that none admitted that there is a clear organizational strategy within their companies towards the development of AIM in Malaysia. However, what these industries do provide is an attachment for academics to work in industry. Moreover, in specific sectors, such as banking, mobility to universities seems to be impossible. If it does happen, it is undertaken purely on the individual's decision and not part of the Malaysian banking industry's organizational strategic plan.

(iv) Organizational structure and AIM

A clear organizational structure is essential for the development of AIM as it will enhance knowledge, and more importantly, increase productivity through effective resource management (Liao & Chuang, 2011). The respondents from the university reported that there is some form of organizational structure to facilitate, implement and transfer technology. However, the important question is whether they are effective and support the development of AIM in Malaysia. On the other hand, many Malaysian industries highlighted that they do not have a formal organizational structure to promote and manage AIM. In most cases, the decision to appoint academics is made by the firm's human resources department rather than as a higher-level strategic decision.

(v) Organizational trust and AIM

In the context of AIM, trust exists when university and industry have the confidence to share ideas, feelings and goals with each other. In Malaysia's experience, there is a trust-deficit among Malaysian academics and industry players, which is affecting the development of AIM in the country.

While public universities intent on creating better cooperation with industries, when it comes to the issue of trust, Malaysian industries generally hold the opinion that universities cannot fulfil their requirement in terms of human resource development and advance technological skills, which is what industries crucially need. Importantly, from the various interviews with Malaysian industry players, they felt that Malaysian academics have been molded to work as part of the Malaysian civil service rather than being able to offer critical views on a variety of issues. Moreover, industry players are skeptical as to whether they can share their ideas, technology or work ethics with academics for fear that the latter may break confidentiality. The trust deficit among industry players as perceived by Malaysian academics can be best summarized by the response from one of the focus group respondents who lamented that:

> ...the [academia-industry] mismatch I think comes from this element called distrust. The industries, they are skeptical about the universities' capability. The universities are on the other hand ok with all that…. So…at the end of the day, this

> distrust, … would lead to the inability to optimize the best from both sides… (Faculty member Y, focus group interview)

(b) Drivers of AIM

From the analysis of data, it was found that drivers of AIM can be broadly classified into individual and institutional levels. Institution level can further be categorized into university, industry, and government levels. These drivers are elaborated below.

(i) Individual level

A handful of participants attributed the lack of mobility from university to industry to insufficient material rewards, such as honorariums and allowances for temporary mobility, and no salary increment for permanent mobility. However, there were more participants who were motivated by intrinsic factors, like self-actualization, and deemed this as more important and sustainable. For instance, one focus group respondent concurred that: "You learned something new… These are the things because not every time it is the monetary [rewards] you know" (Faculty member P, focus group interview). On a similar note, a member of the senior management of a technical university, who has a track record of mobility to industry, shared that monetary reward was not what he looked for. Instead, he was driven by the satisfaction of learning and being able to serve and share:

> "I just wanted to actually share the experience, …, no hidden agenda … You guys could not afford to pay me… I never ask for anything, if you want to give… give. If you don't want, fine. … You like me, I stay, you don't like me, I can go… I want to share the experience, the knowledge that I do have …, so that they don't have to go through what I've gone through. (A senior university AIM administrator, focus group interview)

(ii) Institutional – universities

It is indeed obvious that universities have a major role to play in driving mobility. Yet, owing to the emphasis placed on responding to international institutional ranking exercises, universities do not generally possess reward policies relating to reward and recognition for AIM, which is not a criterion for ranking. Indeed, the lack of any reward system directed at AIM was raised in most of the interviews and focus group discussions:

> … when you write paper such as ISI, we will receive about 3,000 *ringgits*. So when you collaborate with the industry, do universities recognise you? (A senior MoHE AIM administrator, focus group interview).
>
> Basically, what universities want is publication not so much about human capital development. If I get attachment with industries, that will open up a lot of opportunities for my students for training purposes. But all this is not [what] they look into. (Faculty member K, focus group interview)

> All the knowledge and technology that you have actually developed is for what? How can I measure? At the moment, our performance measurement is just merely based on publication, is it sufficient? (A senior university AIM administrator, in-depth interview).

(iii) Institutional – industry

AIM is viewed as important to universities and to the MoHE. However, representatives from the industry had a different perspective on this matter. According to them, AIM lacks return of investment to the firm. Industry is expected to promote AIM via institutionally viable business models and profit sharing with academics. Such was the opinion of a senior academic and university board member with a lot of experience in AIM:

> As the industry I will give you or provide you with some grants, and infrastructure, but we need to discuss what is the best business model that we both agree on. 30 /70 percent? 40/60 percent? Whatever it is, there must be some sort of formula so that we can have a win-win situation between both parties. (A university board member, in-depth interview)

(iv) Institutional – government

Being a coordinating and partly regulatory agency, the government, through the MoHE's Industry Relations Division, has instituted guidelines for AIM. However, these guidelines provide only for the one-way attachment of academics from public higher education institutions (HEIs) to industries, non-governmental organisations (NGO), and government agencies. According to the policy makers, with the introduction of the Malaysian Education Blueprint 2013-2025 (Higher Education), more aggressive initiatives towards Shift 2 (Talent Excellence) and Shift 7 (Innovation Ecosystem) of the Blueprint have been designed and implemented. They include among others, Industry Centres of Excellence Program (ICoE), the CEO Faculty Program (CFP), and Public-Private Research Network (PPRN).

(c) Barriers and constraints of AIM

The results of data analysis show that AIM in Malaysia is constrained by secrecy management issues, intellectual property policy, infringement on academic career, and opportunity costs of faculty members. These are elaborated in the following paragraphs.

(i) Secrecy management

Almost all the interview participants agreed that the existing AIM experience is uni-directional, namely from universities to industry. This one-sided policy is the result of policy planning and development involving mainly inputs from the institutions with none or minimal consultation with the industry. Industry representatives and university leaders share the opinion that the primary factor contributing to this one-sided policy is the existing constraints in information sharing. The

industry has secrets, which are not sharable with universities, and vice-versa. An industry respondent had this to say in an in-depth interview when she eluded on this constraint: "I think it's time that we share but the problem is what we are allowed to share due to the secrecy act ... It's an act under our Financial Services Act. I don't know how much data we can share… so that…. academia can be part of this big transformation of the economy."

The same sentiment was also voiced by a deputy vice chancellor of a university when he said in another in-depth interview: "For us to get into industry, we are not so welcome in the sense that they already have enough staff and they can't or do not want to reveal their secrets. I think we are much more in need for their experience... their skill... knowledge about running a business."

(ii) Intellectual property (IP) policy

Issues regarding intellectual property rights are manifested in the reported disputes regarding handling of IP rights, confidentiality, front-end risks and remuneration. University administrators claimed that universities are concerned about IP rights, and the cost and methods of disclosure while the industry players perceived that the university is not willing to take any of the front-end risks and asks for unreasonable remuneration. These disputes seemed to have made negotiations in partnership difficult and have created mistrust which both parties reported often brought partnership to a premature end.

(iii) Infringement on academic career

AIM infringes on academic career – especially that now public universities are shorthanded. This is especially true for those in professional programs such as medicine. These academics are dedicating more than their normal working hours to deliver curriculum, while simultaneously having to perform duties to fulfil professional membership requirements. There is also a concern that academics who are overly immersed in the industry via AIM may eventually leave the academia for good. A senior public university administrator concurred on this by asserting that:

> … public universities at the moment are shorthanded. Our manpower is not enough especially for professional programs. Industry sucks up all the good engineers very easily simply because their carrots are much sweeter than those of the universities (Faculty member A, focus group interview)

(iv) *Opportunity costs*

The concerns expressed by the academics is that they will lose seniority in the university when they are attached too long with the industry. The setback in seniority may result in lower remunerations compared to their peers who stay with the university all the time. The same situation may prevail in the case of industry staff participating in mobility programs in universities.

Conclusion and implications

The respondents representing four different stakeholders have provided data on the factors, enablers and barriers to AIM, yet the factors and enablers affecting AIM development have mostly been expressed in negative terms.

The findings have suggested that while there is a genuine attempt to promote AIM by various stakeholders such as the MoHE, public universities, industry players and policy makers, a lack of clarity in terms of policy framework and guidelines for AIM has been a major stumbling block. Evidence from the interviews show that Malaysian public universities are not in the position to change their culture, strategy, structure, or build up their trust with the industry player. Conversely, industry players are skeptical about the capability of Malaysian public universities, particularly on the issues of knowledge transfer. This means that the establishment of trust and a shared vision as well as negotiation skills are needed to lay the groundwork for AIM while good practice guidelines for effective management of AIM need to be developed and understood by all the stakeholders.
The interview findings are considered as essential parts of needs assessment, i.e. gathering of information for a suitable professional development program (PDP) for AIM. In this case, the gaps in the present state of AIM indicate the existence of fundamental differences in the understanding and interpretation of knowledge transfer and AIM activities, particularly in relation to an understanding of policy and guidelines, knowledge on various mechanisms for AIM, and awareness of good practices for organizational structure to facilitate collaborations. Conclusively, the findings from this study pave the way for the need to conduct a comprehensive program about AIM in Malaysia. The needs and suitable recommendations are taken into account in the planning of a PDP.

Framework for a Professional Development Program (PDP)

This paper proposes an intervention in the form of a PDP by the MoHE and *Akademi Kepimpinan Pengajian Tinggi* (Higher Education Leadership Academy /AKEPT) that involves a workshop followed by a two-day training session. We consider this PDP series as an important first step for academics, administrators, industry players and government officers to acquire knowledge and skills to carry out mobility program. Moreover, it provides an opportunity for the participants to develop their capacity for academia-industry collaboration.

The professional development series aims at developing a common understanding and awareness of AIM and advancing participants' skills and knowledge in their engagement and commitment to AIM projects and activities. The overall aim is for the participants (academics, industry players and government policy makers) to gain knowledge and understanding of knowledge transfer in the form of AIM as these were the main generic gaps identified in the study. The program's goal is to

provide the participants with the platform for networking and building relationship to gain a comprehensive understanding of AIM and its role in knowledge transfer, as well as develop the related AIM skills, which the study found lacking among all the stakeholders, so as to enable them to mainstream AIM programs.

To enhance the outcome, program participants ought to represent the diversity of stakeholders that exists in the triple helix activities (Figure 2), bearing in mind an overriding consideration, which is to achieve a balance along the three axes of diversity: academics (further divided by those with experience in industry and those without experience, academics managers and administrators associated with mobility or knowledge transfer activities), industry players and government officers. The involvement of faculty management and administrators is crucial as they have the mandate to apply what they have learnt in the program to the related policies and strategies of their respective university. The academics will need to be supported by their institution to apply what they have learnt upon their return from the program. The government officers or policy makers act as the source of contractual relations that guarantees a stable interaction and exchange of knowledge and skills. As such, their involvement as mediators is pertinent to the AIM activities.
The diversity of participants in the workshop and training will also permit the development and strengthening of relationships between key industry players, government policy makers, academic managers and administrators, and the academic peers as mistrust was found to be one of the most substantial barriers to interaction among the stakeholders. While we acknowledge that trust takes considerable time to develop, the meeting of diverse participants should provide a platform for stakeholders to explore potential collaboration through awareness of opportunities, whilst at the same time, develop stronger ties, as well as mutual understanding, trust and confidence with the identified partners. Participation in the training is also intended to provide an opportunity for individuals to develop as professionals, share tacit knowledge, and build new skills and a new community of practice.

The workshop and training program

The findings of the study are used to guide the design and content of the workshop in order to provide the common platform needed to overcome or reduce the gaps identified between the collaborating allies, and to align strategies for mutual benefits and appropriate gains. It is proposed that this workshop uses the stakeholder collaboration methodology to help bring together a range of stakeholders--government policy makers, private sector, academics to develop a better understanding of the issues and challenges involved in achieving AIM goals and objectives at a variety of scales. Stakeholder collaboration is the art of respectfully turning differences into progress. However, as with all arts, there are skills that need to be developed in order to succeed; to know when and how to use dialogue and when to take actions. This workshop will create platform for interactive dialogues between the academics, industry players and government policy makers in achieving consensus. Since the focus group interviews have clearly highlighted an

inherent mistrust of the stakeholders in university-industry collaborations, the workshop will provide a setting in which the participants can communicate values, preferences, perspectives or even fears related to university-industry collaboration, particularly in AIM activities. The topics and contents of the workshop are presented in Table 1 below.

The workshop represents the interface between academia, industry and the government to promote interaction and discussion with the aim of improving the culture of collaboration and build a mutual recognition that industry, academia and the government are credible, equal partners. The topics are considered necessary since AIM was considered less successful due to the lack of common understanding of national policy and guidelines on AIM. Thus, the participants would need a common understanding of the comprehensive concepts of Triple Helix (academia-industry-government) relationship, the stipulated objectives and goals, and the nature and scope of work in AIM. It is implied from the study that the stakeholders stay engaged when there is mutual trust, appreciation of each other's' culture and expertise, transparent communication, and acknowledgement of contributions.

Table 1: Topics and Possible Contents for the Workshop.

Topics	Content
Triple Helix and Roles of Stakeholders	• The concept of triple helix - relationship between university industry governments - concept to action. • Hybridisation elements of university and industry (roles). • Role of intermediaries. • New institutional and social format for production, transfer and application of knowledge and skills. • Stakeholder collaboration - the need for openness, beginning negotiations, identifying who should be involved, the distribution of rights between the parties.
Common Understanding and Visions of AIM	• Building trust and creation of synergies. • Understanding diverse culture, values and orientation. • Aligning interest with win-win approach (proprietary benefits). • Effective process moderation: 'boundary spanners' - managing potential conflicts and promoting collaboration.
Leveraging Networks and Expertise for AIM	• Building relations (between relevant actors among participants). • Creating consensus (on objectives, priorities, activities). • Developing broad areas (strategies) more likely to be implemented, reviewed, redesigned and achieved.

On the other hand, the two-day training program will provide the participants with a comprehensive understanding of AIM and the skills related to AIM project management. The training program is divided into three main components to create a comprehensive understanding among the stakeholders on AIM activities. The first component deals with knowledge transfer

which is pivotal for creating an enabling environment for AIM. The second component will deal with the transfer of vital skills to facilitate good practices which are important for a successful practice of AIM. The final component focuses on the development of social competencies, relationship and communication. The proposed components, modules and contents of the training program are illustrated in Table 2 below.

Table 2: Components, Modules and Contents of Training

Component	Module and Content
AIM and Knowledge Transfer	**Module 1**: Academic Mobility and Knowledge Transfer ▪ Knowledge Transfer and Mechanisms Academic Mobility -Models and Types ▪ Academia-Industry Mobility (AIM) ▪ Policies and Strategies of AIM **Module 2:** Getting the Most of AIM ▪ Technology Transfer models ▪ Types of Knowledge transfer Agreements and Mechanism (e.g. Innovation vouchers or R&D tax credits). ▪ Intellectual Property (the protection and licensing of IP rights) ▪ Operational and Ethical Guidelines
AIM in Action	**Module 3:** Best Practices in AIM ▪ Examples of best practices from Academia to Industry ▪ Examples of best practices from Industry to Academia ▪ Specific results or outcome ▪ Core pre-requisites for a successful implementation ▪ Common features and challenges ▪ Same problem – different solutions **Module 4:** AIM Project Management & Strategy ▪ Project Management Methodology (PMM)-Formation, Operation, Evaluation, Monitoring and Control ▪ Project planning, Contract management, Ethical guidelines ▪ Tangible outcome, Intangible outcome (Follow-through on Deliverables) ▪ Project Portfolio Management ▪ Role of Boundary Spanning Project managers **Module 5:** Development of AIM Proposal
Framework Conditions for AIM	**Module 6:** Institutional/Industrial Strategy and Recognitions ▪ Institutionalisation of decision making ▪ Resource allocation/Budgetary Provisions ▪ Personnel & Facilities ▪ Regulated boundary spaces of information and knowledge ownership, transfer, and sharing. ▪ Role of Boundary Spanning Project Managers ▪ Incentives and compensation (Appraisal of AIM) **Module 7**: Managing Collaboration and Conflicts ▪ Managing conflict, enforcing underlying norms and rules ▪ Managing fragmentation (functional mismatch), loss of synergies (resources) and lock-in effects (lack of interaction and open discussion)

The component of AIM and Knowledge Transfer has an important role in raising awareness about models and types of mobility advocated in the research (Figure 1) which will stress on the importance of well-planned strategies and the benefits of AIM. Special emphasis is provided for agreements and mechanisms of IP which was considered as an unresolved issue among the stakeholders of AIM. The AIM in Action component can provide an intervention for effective management and organizational issues highlighted in the study. The module will showcase best practices of AIM particularly on project planning, monitoring and effective communication, and outcomes. Addressing the deficiency in those skills is crucial if the stakeholders desire to establish effective collaboration. Training on the techniques needed to initiate, integrate, arrange, execute, and organise AIM projects efficiently will also require participants to work on specific AIM proposals which obligate them to jointly design AIM action plan, and receive expert advice. At the end of the program, participants are expected to be able to understand the empowering role of knowledge transfer and AIM, the strategies, mechanisms and measures for AIM, demonstrate skills in writing a proposal for AIM, identify key social competences required for collaboration, and finally identify desirable values and attitudes for successful AIM. Finally, the Framework Conditions for AIM component aims to sensitize participants to the environment that nurtures knowledge transfer activities and supports the sharing of expertise. This component addresses structural, organisational and cultural issues related to AIM and initiatives that can be performed to bridge the gap between academia and industry, and steps can be taken for effective mobility between academia and industry.

The training methods will utilise multiple approaches such as, interactive lecture, guided discussion in groups, participant-led small group discussion, mini presentation session and storytelling. Moreover, each level of components will be evaluated carefully through formal feedbacks from the participants to ensure the effectiveness of the training program.

With the proper implementation of this proposed professional development program, it will systematically reduce barriers affecting the development of AIM in Malaysia. It will also create mutual trust and awareness among various stakeholders to build a strong collaboration, eventually closing the real and perceptional gap between Malaysian public universities and industry players. In the long run, this mutual interaction between academia and industry will stimulate comprehensive leadership development, which is crucial for Malaysia to achieve the status of a developed nation.

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"SPECIAL INVITE PAPER"

DEVELOPMENT OF STRATEGIES FOR INTERNATIONALISING CHINESE HIGHER VOCATIONAL EDUCATION

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ABSTRACT

Although many studies have discussed the internationalisation of higher education in China, few have addressed internationalisation in the context of Chinese higher vocational education (HVE). This research examines the historical evolution of internationalisation in Chinese HVE, analyses the current internationalisation strategies deployed by HVE institutes in China, and compares these strategies with those implemented by Chinese research universities. The research is based on document analysis, including analysis of government policy documents, government statistics and the websites of government agencies and HVE institutes. The results show that the internationalisation of Chinese HVE is based on strong government-driven policies. The development of China's HVE sector was originally based on a combination of Western models and the demands of local industry. For example, the initial model of Chinese HVE was influenced by several Western models, such as the German dual-track model, the Australian technical and further education model and the British apprenticeship model. In the process of internationalisation, Chinese HVE institutes have since implemented various additional initiatives, such as using English as the medium of instruction, recruiting international students, organising exchange programmes with overseas institutes and student internships in multinational companies, establishing branch campuses and developing curriculums to meet the requirements of international qualification frameworks. These strategies differ from those implemented by research universities in terms of their emphasis on industry collaboration, regional economic development and local labour market demands. Based on these findings, the study makes policy recommendations for the internationalisation of HVE institutes and explores its implications for the local economy.

Keywords: Internationalisation of higher education, Chinese Higher Vocational Education

Introduction

With the globalisation of the economy over the last three to four decades, the labour market has also become global, and workforce mobility across national boundaries has reached an unprecedented high. Accompanying these changes, the internationalisation of higher vocational education (HVE) has become an important issue worldwide, and HVE institutes are required to respond to the new and rapidly changing demands of global industries and labour markets. As the number of international students in the vocational education sector increases, institutes must find new teaching and learning approaches to meet the needs of students from different national backgrounds. HVE institutes also need to enhance their reputation and gain a competitive advantage in the global marketplace (Brown *et al*., 2012; Tran & Dempsey, 2017). Accordingly, they have implemented various internationalisation strategies, such as borrowing education systems wholesale, introducing foreign curriculums or innovative pedagogies and developing exchange programmes for academics and students. The process of internationalisation has shifted from government-driven to institution-driven.

HVE in China has rapidly expanded. In 1998, there were 101 HVE institutes, with 148,600 students, whereas in 2017, there were 1,388 HVE institutes, with 11,049,500 students[1]. In recent years, the internationalisation of China's HVE has also accelerated. The number of full-time international students increased from 7,000 in 2016[2] to 17,000 in 2018[3]. By 2017, China had established 960 joint HVE schools and programmes with 28 countries and regions[4]. By 2018, 33 overseas branch campuses had been established by Chinese HVE institutes[5]. In addition, the Luban Workshop programme, which aims to provide young people with vocational skills and share the Chinese HVE experience with other countries, was set up in 2012. The programme has already been implemented in Thailand, the UK, Indonesia, India, Pakistan and Cambodia, and the government began organising 10 more workshops in African countries in 2018. Despite the rapid expansion of the HVE sector and its active participation in recent internalisation activities, there is little research on the main actors of changes, what strengths and weaknesses they have, and how the policies have evolved – most studies about internationalisation have focused on research universities.

HVE makes a particularly important contribution to national economic development, as its goal is to train a skilled labour force for key industries. HVE institutes seek to provide practical training with a flexible curriculum (Tran, 2012). In particular, HVE is expected to improve the connection between education and the labour market (World Bank, 2012; Postiglione & Tang, 2019). This is

[1] http://www.sohu.com/a/270207964_164989.
[2] 2017 Annual Report on Technical and Vocational Higher Education in China.
[3] 2019 Annual Report on Technical and Vocational Higher Education in China.
[4] 2018 Annual Report on Technical and Vocational Higher Education in China.
[5] 2019 Annual Report on Technical and Vocational Higher Education in China.

particularly important in China, whose modern economic growth has been led by manufacturing exports (Ford, 2015). Therefore, this study examines the historical evolution of internationalisation in Chinese HVE, analyses the current internationalisation strategies used by China's HVE institutes and compares these strategies with those deployed by Chinese research universities. The research questions are as follows. How have the internationalisation policies used by Chinese HVEs developed since 1980? What are the main characteristics of the strategies pursued by Chinese HVE institutes and research universities, and how do they differ?

Shaw et al. (2016) highlighted that HVE policies tended to be part of national agendas rather than institutionally driven strategies. The centralised policies have efficiently operated for a long time in a planned economic structure due to the close link between the government, industry, and HVE institutions; however, the recent open economic policy and diversified institutional structures require individual institutions to be more active and creative when building their strategies. Thus, in recent years, it has become increasingly important for institutions to develop strategies to enhance the quality of their programmes and respond to the demands of global industries and labour markets. The findings of this study indicate policy recommendations for Chinese HVE institutes on positioning themselves in the global knowledge economy and realising a national strategy, especially in the manufacturing field, while simultaneously developing their strategies for global competitiveness and programme diversification.

The study also has social implications. For instance, it indicates the need to strengthen industry-school relations, promote education quality and establish internships in the process of HVE internationalisation to contribute to local society.

Literature Review

1) Internationalisation of Chinese Higher Education

After its accession to the World Trade Organization (WTO) in 2001, China experienced economic globalisation in various dimensions. This led to a broad range of social and economic changes, such as economic liberalisation, a shift from farming to manufacturing as the country's main industry, migration from rural to urban areas and the strengthening of the private sector (Shan & Guo, 2016). Globalisation in higher education has been defined as 'the broad economic, technological, and scientific trends that directly affect higher education' (Altbach, 2004, p. 5). These trends include an increase in both cooperation and competition on an international scale (Postiglione, 2016). Internationalisation in higher education has been defined as the 'specific policies and programmes undertaken by governments, academic systems and institutions, and even individual departments or institutions to cope with or exploit globalization' (Altbach, 2004, p. 6). The internationalisation of higher education institutes covers teaching, research and administration

(Knight, 2002). Further refining this concept, Knight (2008) argued that the internationalisation of higher education consists of internationalisation at home and cross-border education.

The history of internationalisation of China's universities was thoroughly reviewed by Hayhoe (1996) and Yang (2002, 2014). They explained that the modern Chinese higher education system was originally based on the Japanese model of higher education and subsequently influenced by the Soviet and American models. Although China's modern higher education system has been strongly influenced by Western and other imported models, it has developed considerably and made significant achievements over the last three to four decades. Today, aspects of the Chinese higher education system are exported to many other developing countries, with the input of substantial resources by the Chinese government. The exportation and thus internationalisation of Chinese higher education, such as through the Confucius Institute, manifest China's soft power (Yang, 2012; Wu, 2019). Based on 17 university cases in Guangzhou, Yang (2002) elaborated on the various internationalisation strategies deployed by Chinese universities, which include student and faculty exchange, curriculum internationalis-ation, research collaboration, the arrangement of international conferences, cooperation agreements and the establishment of transnational institutes.

Studies have explored internationalisation in Chinese higher education from several perspectives. First, some have explored the bilateral relationships formed between China and other countries in the process of internationalising higher education, such as China's connections with the Association of Southeast Asian Nations (Welch, 2012), Singaporean universities (Welch, 2015), universities in the former Soviet Union, univer-sities in Africa (Li, 2017) and Canadian universities (Hayhoe *et al.*, 2016). Other stu-dies in this category have examined various types of cross-border higher education collaboration (Huang, 2003; Mok & Xu, 2008; Yang, 2008). Wu (2019) emphasised the shift in China's higher education sector from importation to exportation and descry-bed its internationalisation strategy as 'outward-oriented' (p. 81-82). Current examples of this outward-oriented strategy are not difficult to find; they include the Confucius Institute, the provision of aid by higher education institutes to undeveloped areas and the recruitment of international students to China's higher education sector. Second, studies have taken an institutional perspective on policy issues related to the internatio-nalisation of Chinese higher education, such as the use of English as the medium of instruction (Yang, 2002; Zhang 2018). Studies in the third category are the most prolific. They have focused on students' experiences, such as the global competency of undergraduate students at Chinese universities (Meng *et al.*, 2017) and the experiences and cultural adaption of international students at Chinese universities (Li, 2015; Chiang, 2015; Ding, 2016).

Internationalisation has become a key policy for many research universities in China, and they have introduced several approaches to demonstrate their international engage-ment, such as transnational and exchange programmes for students and academics, upg-rading curricula, and

collaborative research (Zha, 2019). For most research universities, internationalisation was the main strategic tool to improve their visibility and reputation in globalised higher education as world-class universities. The government-led reform policies were the main drivers for internationalisation in those institutions, although the detailed approach was different from those in HVE institutes. For example, the main goal of the internationalisation of research universities was to recruit talented academics executing high-profile research and encourage them to be more engaged in world-class research activities (Altbach & Knight, 2007). Those policies were efficient to increase the rankings of Chinese research universities in a short period, as many league table indicators demonstrate (Allen, 2019).

However, those top-down approaches raised concerns in recent years regarding conflicts between stakeholders in higher education, reliance on quantitative performance indica-tors, neglect of educational quality, disadvantages of certain academic fields, and coor-dinating Chinese characteristics with global discourse (Allen, 2019; Song, 2018). This is particularly important today because many Chinese universities have interests beyond being responsive to government initiatives and reform policies. Previous studies have demonstrated the barriers of implementation of internationalisation plans among research universities, such as diversified understanding of the goals and strategies among stakeholders or lack of staff and student engagement (Jin et al., 2020). Zha's (2019) study pointed out that the Chinese government invested a significant amount of resources in internationalisation in higher education for political and economic purposes; however, those approaches possibly weakened the potential for innovation and approaches at the local and institutional levels of develo-pment. These experiences and reflections provide several implications for fulfilling the internationalisation of HVE institutions in China.

Despite the increasing importance of HVE in China and the emergence of new appro-aches to the internationalisation of the sector, insufficient attention has been paid to how Chinese higher vocational institutes have been internationalised historically and what their current status is. Most studies of the internationalisation of higher education have focused on research universities, not vocational institutes. In addition, little is known about how government policy and university strategies interact to respond to the demands of global and local industries and labour markets. Thus, this research explores the internationalisation strategies implemented by China's HVE institutes in comparison with those of China's research universities.

2) China's Higher Vocational Education

In China, as shown in Figure 1, after completing 9 years of compulsory education in primary school and junior high school, students take a final examination. Those with sufficiently high scores enrol in senior high schools; those who do not meet the entrance requirements for seni-or high schools attend vocational schools at the secondary level. In 2017, the percentage of enrolment in senior

high schools and vocational schools was 51.9% and 42.1%, respectively, at the national level (Wang & Liu, 2018).

As also shown in Figure 1, graduates of senior high schools enrol in universities or higher vocational institutes, depending on their *Gaokao* (National College Entrance Examinati-on) scores. The rate of enrolment of senior high school graduates in Bachelor's degree programmes differs between geographical regions of China. For instance, enrolment in Tianjin city is 79.43%, that in Beijing is 68.91%, and that in Sichuan province is 30.89%.[6] Those whose *Gaokao* scores do not meet the entrance requireme-nts for Bachelor's programmes go to higher vocational institutes. In 2018, taking Guangdong province for example[7], 23.01 % of students attending secondary vocational schools enrol in higher vocational institutes. The remainder enter the workforce directly. They are not eligible to take the *Gaokao* examination for university entrance, because they hold vocational rather than academic qualifications at secondary level (*Zhong Zhuan*). However, they have the opportunity to pursue self-study to gain a higher vocational degree (*Da Zhuan*) first and then go to university to obtain a Bachelor's degree.

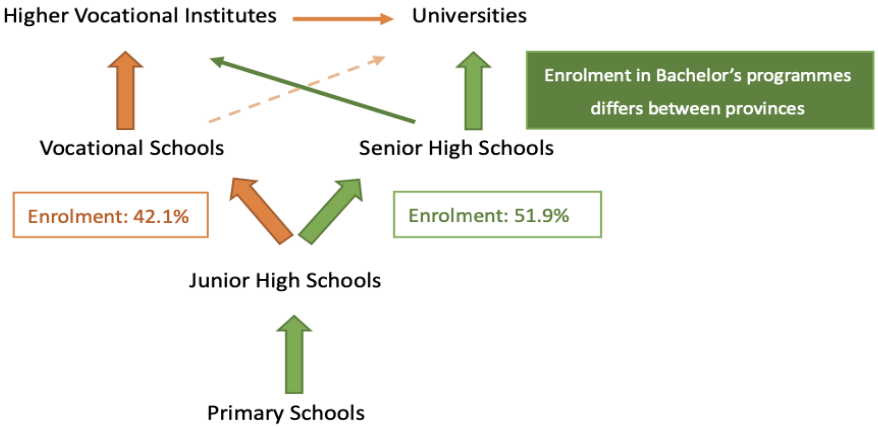

Figure 1: China's education system and relevant statistics in 2017 (Wang & Liu, 2018)

Vocational education in China is strongly influenced by economic conditions and industrial structures. In particular, in the era of Industry 4.0, employers in various industries have repeatedly raised concerns as to whether the country's existing vocational education meets new demands for skills (Postiglione, 2016). Researchers have noted that the massification of China's higher education has not solved the problem of the skills gap (Bai, 2016). After the global financial crisis in 2008-2009, the Chinese government recognised the need to move away from exports as the basis of its economy. Instead, therefore, it sought to foster a highly motivated workforce and

[6] https://www.sohu.com/a/336172077_623714
[7] http://www.zhjedu.cn/Article/d6260bb8-216b-4e12-aa4c-c4b3e877e666.shtml

improve workers' job-related skills (Chan, 2015). HVE was expected to play a central role in reducing the skills gap in industries and labour markets. In today's era of globalisation, China has decided to shift its strategy from 'made in China' to 'invented and designed in China'[8]. The central aims of this policy are to provide higher-value industrial goods and services and to strongly promote innovation. The role of HVE has become increasingly important with these policy changes, as more and more skilled workers must be trained for China's export-oriented manufacturing industry (Ren, 2018).

As Tran and Dempsey (2017) pointed out, different countries have taken different approaches to the internationalisation of higher vocational education. For example, HVE institutes in English speaking countries have focused on commercialising education and generating revenue by recruiting more international students, whereas institutions in Asia have tended to use HVE institutes as a tool for developing a qualified workforce for the local labour market.

Methodology

This research is based on document analysis. Documents serve as a valuable resource for researchers exploring social phenomena (Goodson & Sikes, 2001). Unlike interviews and observations, document analysis provides a platform for exploring history (Olson, 2010). By definition, documents exist before document analysis is conducted, and the data they contain take many forms (Miller & Alvarado, 2005). Archival documents record formal communication in society (Atkinson & Coffey, 1997). Scot (1990) illustrated four key criteria that must be met to ensure the quality of document analysis, namely authenticity (relating to the author(s) of the document, why it was written, and whether it is based on first-hand materials), credibility (whether its content is reliable and correct), typicality (whether its content is representative and generalizable) and meaning (intended meaning, received meaning and internal consistency of meaning). The documents reviewed for this research are categorised in Table 1.

Table 1: Forms of documents analysed

Source	Documents	Data
Government websites	Website of Ministry of Education, China (http://www.moe.gov.cn) Information Platform of Chinese-Foreign Cooperation in Running Schools (http://www.crs.jsj.edu.cn)	Statistics: number of institutions, programmes and students; enrolment rate. Number of joint schools and programmes with overseas institutes.

[8] http://www.chinadaily.com.cn/opinion/2013-10/10/content_17019260.htm.

Government publications	*Annual Quality Reports of China's Higher Vocational Education*, edited by the Shanghai Academy of Educational Sciences and MyCOS Institute. [Dec 2015; July 2016; July 2017; July 2018; June 2019] *Theory and Practices: Modern Apprenticeship in Guangdong*, edited by the Education Bureau of Guangdong Province and Education Research Institute of Guangdong Province. [May 2017]	Key national policies on vocational schools Guangdong province case study: UK apprenticeship model, school-industry collaboration.
Official websites of HVE institutes	Ranking of the top 50 most internationalised HVE institutes published in the *Annual Quality Reports on China's Higher Vocational Education*. [July 2017; July 2018; June 2019]	Internationalisation related activities/events: exchange programmes, adoption of English curriculums, overseas internships, double degree programmes, recruitment of international students, foreign delegation reception, Luban Workshop programme abroad.

All collected and analysed documents were publicly available in text format as books or website information, and there were no confidentiality issues. As most of the docu-ments above were originally written in Chinese, the key information subject to data analysis was translated into English. To improve the reliability of the translation, the researcher cross-checked the translation with two other researchers who could read both Chinese and English. The names of specific HVE institutes were translated accor-ding to the names shown on their official websites. In translation, some of these names may appear to denote universities or technical colleges, but in Chinese, they belong to higher vocational institutes. The websites and publications listed above were issued or compiled by the government and are annually updated by the government.

There are three possible approaches to document analysis: 1) analysing the content of docum-ents, 2) analysing documents as commentary in context and 3) analysing documents as actors in context (Miller & Alvarado, 2005). In this study, all three approaches were used.

First, all of the relevant documents were collected and filed. To ensure the comprehend-siveness of the analysis (Jordanova, 2000), a broad range of documents was selected. The selected documents included government policies and regulations at national and provincial levels, annual statistics, yearbooks and institutional rankings published by the government, and documents reporting on news and events at HVE institutes. They were selected from library resources and using an online search engine. As Howell and Prevenier (2001) noted, researchers must purposefully select documents that contain information relevant to the aim of the research. Therefore, only relevant documents were chosen for this study, and they were re-organised by

theme and time-line. Third, the history of HVE was summarised, reviewed, interpreted and cross-chec-ked using multiple sources of data. Third, the main activities of China's HVE institutes were identified from the institutes' official websites and then compared to find common themes across the cases. The main activities listed in news and events reports on the websites of the selected HVE institutes (either in Chinese or in English) were summarised. The activities were listed and categorised in one Excel file. The categories of internationalisation activities included receiving foreign delegations, outbo-und visits, student/staff exchange programmes, double degree programmes, school-indu-stry internships, overseas internships, international conferences, international publications and Belt and Road activities.

Researchers conducting document analysis must consider certain aspects of the social context (Finnegan, 1996). In this study, our interpretation was qualitative, enabling us to obtain an in-depth understanding of the phenomena (Patton, 2002). When analysing the documents, both content and context were considered (Atkinson *et al*., 2001).

Content analysis was performed by listing and reviewing all of the statistics, regulation-ns and policies; context analysis was conducted by cross-checking certain policies and their major purposes on a specific timeline. To ensure the reliability of the study, key terms and concepts were reviewed, discussed and cross-checked by the researchers. The policies and regulations issued by the government and their implementation by institutes were also cross-checked.

Findings

1) History of internationalisation of China's HVE

To answer the first research question, 'how have the internationalisation policies used by Chinese HVEs developed since 1980?', policy documents were analysed, and the main findings are organised in chronological order. In particular, the implications of key policies for stakeholders in higher vocational education were discussed.

The internationalisation of China's HVE was analysed in three phases by Wang (2016). Phase I ran from 1978, when China launched its reform and opening up policy, to 1985. During this phase, China received financial support from the World Bank and technical aid from the German government. Phase II ran from 1986 to 2000, during which China received support from Germany, Australia and the UK to establish vocational schools that provided teacher training, designed their own curriculums and offered international qualifications. Phase III began with China's accession to the WTO in 2001 and is ongoing. During this phase, more and more joint programmes and joint schools have gradually been set up and various internationalisation strategies implemented. Table 2 outlines the historical development of the internationalisation of Chinese HVE.

Table 2: History of internationalisation of Chinese HVE

Time	Process of and Key Events in Chinese HVE Internalisation
Phase I	
1978	Opening-up policy
1980	Minister of Education Nanxiang Jiang paid an official visit to Germany to discuss collaboration in the area of vocational education
1983	● China's Ministry of Education led the first joint project between China and Germany in 1983 – the Nanjing Vocational & Technical Education Center on Architecture, jointly established by the Nanjing Education Bureau and Hanns Seidel Stiftung. ● From 1983, six cities in China (Suzhou, Wuxi, Changzhou, Shenyang, Shashi and Wuhu) were used as pilot settings for the German dual-track system. ● Types of collaboration: bilateral visits, symposiums and workshops, staff exchange (Chinese staff sent to learn in Germany; German experts invited to China to give lectures and consultations).
1985	In the mid-1980s, to promote HVE, China used US$35 million from the World Bank to support the development of 17 vocational colleges.
Phase II	
1988	German government provided volunteer aid for China to set up a central research center on vocational education and also two research centers in provinces.
Up to 1990	China received a US$50 million loan from the World Bank under the China Vocational and Technical Education Project Loan Agreement, signed in 1990.
1991	From 1991 to 1996, the Sino-Canada Post-secondary Vocational & Technical Education Cooperative Program was carried out in 3 rounds, involving 29 vocational schools in China and 33 vocational schools in Canada.
1993	Jinling Vocational University cooperated with Australian universities to hold a double degree course, representing the first multinational segmental cooperative education project in the field of higher vocational education in China.
1994	● The Chinese and German governments issued their first *Joint Statement by the Government of the People's Republic of China and the Government of the Federal Republic of Germany on Strengthening Cooperation in the Field of Vocational Education* in July 1994. Under the framework, the Sino-Germany Joint Group on Vocational Education was set up, and engaged in five years of policy cooperation. ● The German government offered a bank loan to China to promote vocational education in Beijing, Shanghai and Liaoning. ● From 1994 to 2000, The Vocational Skills Appraisal Center of the Ministry of Labor and Social Security and the British Cultural Commission carried out the 'China-UK Professional Qualification Certificate Cooperation Project' and established an international level vocational skill appraisal system aligned with professional competence standards.
1995	Issuance of *Interim Provisions on Sino-foreign Cooperation in Running Schools*.
1996	The World Bank provided a US$30 million loan to support vocational education in Chin.
Phase III	
2000	China's entry into WTO
2002	In March 2002, the Sino-Australia (Chongqing) Vocational Education Program was launched – the largest-scale cooperation on vocational education and training between the Chinese and Australian governments.

	Australia invested AU$19,420,000 and China invested the equivalent of AU$5,300,000 to support five vocational schools in Chongqing city from 2002 to 2007. This programme is still ongoing.
2006	In 2006, China's Ministry of Education introduced the country's first vocational education curriculum involving a world famous enterprise: Toyota Motor Corporation's Technical Education for Automotive Mastery in the 21st Century.
2009	The Ministry of Finance and OPEC Foundation for International Development signed the Yunan Vocational Education Program Loan Agreement to support four higher vocational colleges in Yunan. The total investment was RMB492 million.
2013	Ningbo TAFE College entered into collaboration with Australian counterparts.
2015	● The Ministry of Education introduced a *Higher Vocational Education Innovation Development Action Plan* (2015-2018), which clearly stated that vocational education in China should provide significant support for and engage in close collaboration with Belt and Road countries. ● Joint development of courses with overseas high-level institutions; establishment of professional, laboratory or training bases; establishment of cooperative relationships such as teacher exchanges, student exchanges and mutual recognition of credits; and high-level Sino-foreign cooperative education projects and institutions. ● Promotion of the internationalisation of the National Vocational College Skills Competition. ● Sino-German Alliance for Higher Vocational Education was initiated and set up by 18 institutes from China and Germany.
2016	● Ranking of the top 50 most internationally influential higher vocational institutes. ● Tianjin set up China's first Luban Workshop in Thailand.
2018	China began setting up 10 Luban Workshops in Africa.
2019	● China's first Luban Workshop on Chinese medicine was set up in Switzerland ● Sino-Germany Alliance for Enterprises and Vocational Education was set up in Germany as NGO to promote school-industry collaboration in vocational education.

We identified three main aspects of the history of internationalisation of HVE in China. First, the internationalisation process has been driven by strong government policies, with the involvement of many stakeholders, such as the Ministry of Education, the Ministry of Finance and provincial governments, all of which play key roles in implementing the policies. As the workforce demand grew after the launch of the reform and opening up policy in 1978, Chinese governments actively sought to gain experience of vocational education from German models through bilateral agreements with the German government. The resulting inter-government programmes were implemented from the top down as a national strategy. Second, the internationalisation of HVE institutes shifted from a government-dominated approach to a more balanced approach led by both governments and institutes, and then to an institutionally driven approach. For example, before 2000, most policies were government-initiated, but after 2000, more institute-initiated activities were conducted, such as exchange programmes with overseas institutes, jointly developed curriculums, the mutual recognition of credits and the establishment of Sino-foreign institutes. Third, China started to export its successful policies and experiences to Belt and Road countries after years of borrowing policies from developed countries such as Germany, the UK, Australia and Canada. Chinese companies started to set up branches in Belt and Road countries to improve the local economy, increasing the demand for skilled local workers. Exporting China's vocational

education helps Chinese companies to train local workers to create high-quality local workforces. Fourth, the internationalisation of HVE institutes involves the cultivation of qualified workers to assist in the internationalisation of the whole country – for instance, to meet the need of multinational companies with foreign direct investment.

Policy strategies for the internationalisation of HVE have become more dynamic in recent years. For example, the *Action Plan on Higher Vocational Education Innovation and Development (2015-2018)*[9], released in October 2015, indicated the need to attract excellent resources from abroad through joint schools, programmes and curriculums. The *Implementation Plan of National Vocational Education Reform*,[10] released in February 2019, encouraged HVE institutes in China to learn from German, Japanese and Swiss models in setting up innovative practical bases for vocational students. The *China Education Modernization 2035 Plan*[11] was released in February 2019 to promote the Luban Workshop programme overseas. In the *Innovative Development of Higher Vocational Education Action Plan (2015-2018)* issued by the Ministry of Education[12] in 2015, the government promoted international collaboration in various dimensions, such as strengthening policy dialogue with developed countries, exploring potential channels and policies for supporting vocational education in developing countries, actively participating in the development of international criteria and regulations for vocational education, developing internationally recognised curriculums, helping HVE institutes to set up branch campuses abroad to train local workers and gaining a competitive advantage in the global skills marketplace.

Last, in recent years, the internationalisation of HVE in China has emphasised framew-orks for excellence and encouraged competition between institutions. For example, the 2019 *Annual Quality Report of China's Higher Vocational Education* ranked the top 50 most internationally influential HVE institutes since 2016. The report identified the eight main criteria used to select these top 50 institutes, as follows: the number of full-time international students (studying for more than one year), the number of part-time or short-term international students, the number of students engaging in inter-nships in companies abroad, the number of teachers supervising and conducting training abroad, the number of teachers who are fellows of international organisations, the number of internationally recognised teaching criteria developed by teachers, the number of internationally recognised curriculum criteria developed by teachers and the number of awards received in international skills competitions. For example, Figure 2 shows the number of joint programmes established in each province. At the top of the list are Jiangsu, Zhejiang, Shandong and Shanghai, which also rank among the top 10 Chinese provinces in terms of GDP[13] and volume

[9] http://www.moe.gov.cn/srcsite/A07/moe_737/s3876_cxfz/201511/t20151102_216985.html
[10] http://www.gov.cn/zhengce/content/2019-02/13/content_5365341.htm.
[11] http://www.gov.cn/zhengce/2019-02/23/content_5367987.htm.
[12] http://www.moe.gov.cn/srcsite/A07/moe_737/s3876_cxfz/201511/t20151102_216985.html.
[13] http://finance.people.com.cn/n1/2020/0124/c1004-31561663.html.

of international trade[14]. Remote and impoverished areas of China have few joint HVE programmes. This demonstrates the close link between local economic conditions and the development and dynamic internationalisation of HVE.

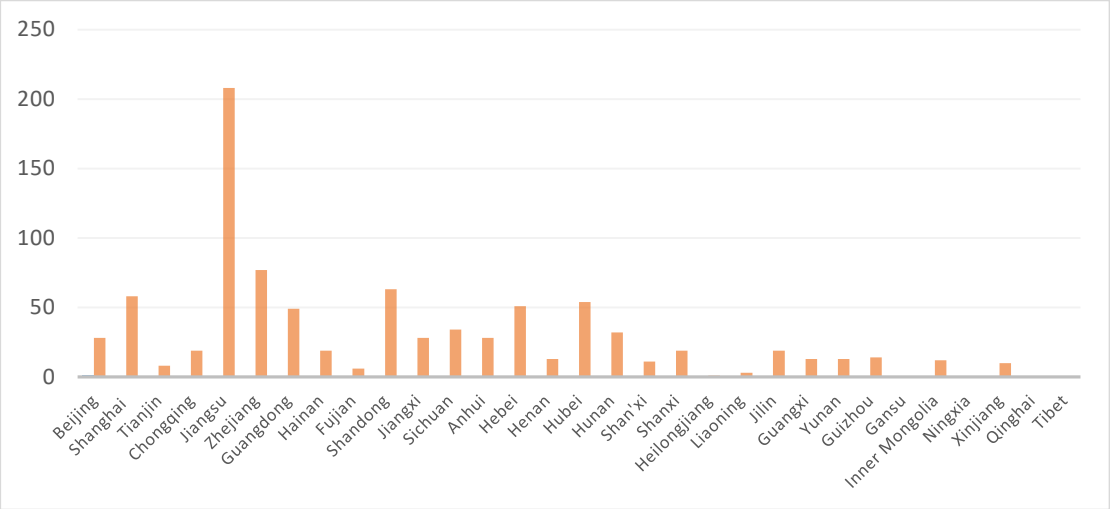

Figure 2: Number of joint programmes offered by HVE institutes in China[15]

In summary, the internationalisation of Chinese HVEs has been developed by multiple stakeholders, including the government, institutions, and industry. Initially, it was to meet the market demands after amending economic policies; however, it gradually has been broadened to include educational and training purposes. In this process, policy-borrowing from European countries and Australia had a key role in shaping Chinese policies, and China has been able to export its systems to developing countries today. It is also notable that recent policies strongly emphasise the quality assurance of internationalisation policies in HVEs.

2) Features of internationalisation of Chinese HVE

Through analysis of past and current policies, this study identified the main characteristics of the internationalisation strategies deployed by HVE institutes in China, specifically, the main actors in policy implementation, the influential international partners and the policies that were transferred, and the industry's role in the internationalisation process.

First, most of these strategies have been government-led/-initiated at the national level due to the demand for industrial upgrading and the need to fill the skills gap in China's socialist market. HVE is a regional and applied form of higher education, whose main task is to nurture high-skilled talents and their contribution to the regional economy (Reng, 2018). The internationalisation

[14] http://news.hexun.com/2018-08-20/193835387.html.

[15] Annual Quality Report of China's Higher Vocational Education (2019).

strategies of HVE institutes differ from those of research universities in a few respects, such as their starting point. 'Rather than starting from student international mobility, [HVE internalisation] starts from participating in governmental projects' (Wang, 2016, p. 50). The internationalisation of China's HVE has gone 'hand in hand' with China's opening-up policy (Huang, 2010).

Second, HVE institutes pursuing internationalisation have learned from overseas experiences, such as by importing apprenticeship systems from Germany, Australia and the UK. After the launch of its opening-up reforms in 1978, China experienced a huge demand for applied and technical talents. Germany has been a long-term partner in this area. The first Sino-Germany HVE project was initiated by the Chinese and German governments in 1983, and the project has since been upgraded to its current form, the Nanjing HVE Institute (Wang, 2016). The Chinese government has taken an active part in this process. For example, China's Ministry of Education selected six cities as pilot settings for the German dual-track system (Wang, 2016). According to the central government website, from 1978 to 2008, Germany helped China to train approximately 2,000 vocational education teachers and 700 principals.[16] According to the website of the Tianjin Sino-German University of Applied Sciences (established in 1985 by China and Germany as a vocational school and renamed the University of Applied Sciences in 2009)[17], Germany provided China with DM25 million and technical aid to set up the Sino-German Center for Technician Training. International collaboration has became more formal in recent years; for exampleinternational qualifications are officially provided by many HVE institutes today, enhancing the credibility of collaboration.

Australia is another of China's key partners, having launched several exchange programmes with Chinese institutes. According to the website of the Ministry of Education[18], the Australia-China (Chongqing) Vocational Education and Training Project was established in 2002 as part of a cooperation phase that ended in 2007. Ningbo TAFE College was set up in 2013 in collaboration with Australian counterparts to implement Australia's technical and further education (TAFE) system in China. The Australian government invested nearly AU$20 million and the Chinese government invested the equivalent of AU$5.3 million to develop five vocational schools in Chongqing.

The UK is another collaborative partner. *Theory and Practices: Modern Apprenticeship in Guangdong* (2017) records the signing ceremony of the Agreement on Sino-British Vocational Education Modern Apprenticeship Pilot Program in Guangdong by the two governments in 2014. Zhongshan city was selected by the Ministry of Education as the first pilot setting for the UK's Modern Apprenticeship programme.

[16] http://www.gov.cn/ldhd/2009-11/29/content_1475934.htm.
[17] http://www.tsguas.edu.cn/xxgk/lsyg.htm
[18] http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/moe_351/200408/3546.html.

Third, international industry-school collaboration plays a vital role in the internationalisation of HVE institutes (Reng, 2018). For instance, the Guangzhou Institute of Technology has engaged in in-depth collaboration with the automobile company Scania AB (Theory and Practices: Modern Apprenticeship in Guangdong, 2017); Liuzhou Vocational and Technical College has implemented the German dual-track system in collaboration with ZF[19]; and Heilongjiang Polytechnic collaborates with Walmart on apprenticeship provision[20]. In the Sino-German Automotive Vocational Education Project, Volkswagen[21] has been providing apprenticeship in China's vocational institute since 2011.

To sum up, the analysis revealed that the government-led policies successfully assisted in fulfilling national economic goals and industrial upgrading, and the learning experiences from international partners did significant roles in the development process, i.e. Germany's dual-track system, Australia's TAFE system and UK apprenticeship system). Recently, industry-school collaboration has become more important in nurturing the future workforce in the globalised job market.

3) Differences between internationalisation strategies of China's HVE institutes and research universities

This study examined the major internationalisation strategies used by Chinese HVE and research institutes and found clear differences between the two. The study focused on how two types of institutions, HVE and research universities, have developed their internationalisation strategies and what the implications are for both sectors.

These differences were identified from relevant documents analysed in terms of starting point, core emphasis and exportation approach. Both HVE institutes and research universities implement internationalisation strategies involving broad student exchange opportunities, international student recruitment and faculty visits. However, as Table 3 shows, although the internationalisation strategy of research universities in China starts by promoting cultural exchange among students and faculty (Rhoads *et al*., 2014), the internationalisation of China's HVE starts with participation in inter-government projects. Whereas research universities strongly emphasise academic and research exchange, China's HVE institutes focus on apprenticeship systems, industry-school collaboration and technical support from volunteers. The internationalisation of China's HVE is closely related to governmental and national strategies for industrial upgrading and overcoming the skills gap in the socialist market economy.

[19] http://www.lzzy.net/xwzx/xww/xyyw/content_8016.
[20] http://www.sohu.com/a/130106673_162758.
[21] http://reports.weforum.org/disrupting-unemployment/sino-german-automotive-vocational-education-project/

Table 3: Differences and similarities between internationalisation strategies of Chinese HVE institutes and research universities

	HVE Institutes	Research Universities
Starting point	Inter-government collaboration	Student/faculty exchange
Core	Apprenticeship system, industry-school collaboration	Academic/research exchange
Exportation	Luban Workshop programme to train skilled local workers	Confucian Institute, which disseminates Chinese culture
Similarities	Led by the government; broad student/faculty exchange; recruitment of international students	

Although two sectors had similar approaches in developing internationalisation policies based on government initiatives, they have different approaches to execution, such as what teaching and learning models they imported and what final programmes they exported.

Conclusion

To conclude, the major findings of the study are summarised in this section, and the policy implications are as follow:

First, the internationalisation of Chinese HVE has shifted from a reliance on international organisational support to Chinese government-driven policies and finally to policies initiated by HVE institutes. In the early 1980s, after China's opening up to the outside world, international organisations such as the World Bank began to help China develop its vocational education. Meanwhile, the Chinese government recognised the importance of nurturing a qualified workforce to cope with the rapid growth of the manufacturing industry and its various sectors. Accordingly, the Chinese government began to send delegations to Germany to learn from its dual-track vocational system. Policies were borrowed from Germany as part of a government-driven scheme to build China's own vocational education system. Inter-government cooperation has become more and more common in the area of vocational education, and institutes have begun to apply for funding under inter-government programmes. Since the early 2000s, HVE institutes have initiated various exchange programmes, double degree programmes and internships with counterparts abroad, capitalising on their own advantages to pursue internationalisation.

Second, the Chinese government started borrowing vocational education policies from Germany, Australia and the UK in the 1980s, and this collaboration continues today. Since 2015, however, the Chinese government has also exported successful HEV policies to developing countries, particularly Belt and Road countries, and trained skilled local workers for employment in the overseas branches of Chinese institutes. In 2015, the Ministry of Education introduced its *Higher*

Vocational Education Innovation Development Action Plan (2015 – 2018), according to which China supports Belt and Road countries through its successful policies and experiences and helps these countries to build workforces. China also exports its vocational education internationally in the form of Luban Workshops, covering not only Belt and Road countries but also some developed countries. For example, Tianjin held the first Luban Workshop in Thailand in 2016. In 2018, China began organising a further 10 Luban Workshops, including one on Chinese medicine in Switzerland.

Third, apprenticeships play a critical role in HVE and its internationalisation. Students in HVE institutes engage in apprenticeships and internships in multinational companies in China or overseas companies set up by Chinese enterprises. Collaboration between HVE institutes and the industry is a distinctive feature of the internationalisation of Chinese HVE. China's apprenticeship system is based on German, Australian, British and Canadian models, which stress the equal importance of learning at school and hands-on practice in the industry. As more and more Chinese companies are opening branches abroad, the Chinese apprenticeship system is also being exported overseas to train local people as branch employees.

Based on key findings, Suggestions for government policy makers, researchers and HVE institutes relating to internationalisation strategies are as follows. First, the future role of HVE in the era of Industry 4.0 needs to be discussed in depth to establish an appropriate direction for its development. The rapid automation and robotisation of the manufacturing industry will create a changing labour market for future graduates of HVE institutes in China. Therefore, training students with a focus on the demands of the local manufacturing industry might not be successful in the future. Instead, policy makers should identify the knowledge, skills and competencies needed in both local and global industries, and determine how to fulfil these needs through HVE. In particular, as knowledge and skills in the manufacturing industry are rapidly updated, HVE institutes need to regularly upgrade their curriculums to meet the new demands placed on future graduates. Second, HVE institutes should work closely with local industry practitioners to jointly design and update their curriculums. Hands-on internship opportunities in relevant companies should also be embedded in HVE provision. Third, HVE in China not only significantly contributes to the local economy but also represents a key sector of the country's higher education system. Its impact on teaching, learning and research will help to shape the future development of this system. Studies should examine best practices in HVE teaching and learning, and policy makers, researchers and institutional leaders should share HVE internationalisation strategies and their results.

The main limitation of this research lies in its use of document analysis alone. More fieldwork, such as interviews and on-site observations, should be done in future studies. Future research could also explore the development of innovative pedagogical approaches to meet industry demands and their links with economic development.

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A NEEDS ASSESSMENT FOR THE IMPROVEMENT OF ENGLISH TEACHER EDUCATION PROGRAMS IN VIETNAM

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ABSTRACT

English teacher education is a key contributor to the development of English language teaching and learning in Vietnam. As shown from previous studies, the quality of English teacher education programs is not at a satisfactory level. The paper presents part of the findings of a study using needs assessment on the English Teacher Education Program (ETEP) in a Public University (a pseudonym is used throughout). The needs assessment was conducted to in order to provide the ETEP's designers with students' overall satisfaction with the program and the extent to which the ETEP meets its students' specific needs. The research adopted the methodology of needs assessment proposed by Watkins et al. (2012). The research applied a quantitative approach with a dual-response questionnaire employed as the instrument. Findings reveal that generally the ETEP satisfies students' needs at the medium level though some aspects of the ETEP such as soft skill development and the process of learning how to teach need improving. It is recommended that the link between practice and theory should be strengthened for a higher quality ETEP through technology integration, teaching practicum improvement, and soft skill integration.

Keywords: Evaluation, program evaluation, needs assessment, teacher education, program objective

Introduction

English language is one of the most popular foreign languages being in Vietnam (H. T. M. Nguyen, 2017). Recognizing the importance of foreign languages in general and English in particular, the Vietnamese government has launched many policies in order to enhance the learning and teaching of foreign languages. The National Foreign Language 2020 Project (NFL 2020 Project) currently being implemented is the most important one for the improvement of the foreign language capacity of the Vietnamese people (Le, 2015; NFL 2020 Project, 2016; Vo, 2017).

As well as this, an English Teacher Competency Framework (ETCF) was implemented in 2013. The ETCF is used as a guide to design teacher training programs and to assess the development of competencies for teachers of English in Vietnam (NFL 2020 Project, 2013). The framework also serves as a reference for designing English language proficiency tests in Vietnam.

English teacher education globally has been facing such issues as a lack of practice in the program, and the inappropriate process of learning to develop soft skills. In Taiwan, Luo (2003) found that there was a distance between theory and practice in EFL teacher education programs. The issue was also observed in the Philippines where there was a gap between theory and practice (Sunga, 2004). In Vietnam, H. T. M. Nguyen (2017) discovered that English teacher education did not provide a good connection between theory and practice when teaching practicum was not very effective. The process of learning how to teach has been shown to be ineffective due to some weaknesses in the implementation of the teaching practicum (Vo et al., 2018). Furthermore, due to the lack of time for practice, not enough attention is paid to soft skill development in English teacher education (H.T.M. Nguyen, 2017).

In a lot of research, there is an urge to retrain teachers of English whose knowledge and skills are found to be unsuitable for modern English teaching and learning (NFL 2020 Project, 2008; Nguyen & Hudson, 2012; H. T. M. Nguyen, 2017). Besides in-service teacher training, there is a need to improve English teacher education programs. It is expected that the quality of teachers of English provided by the English teacher education programs in Vietnam in general and by the ETEP in Public University in particular should be improved to meet the new standards of an English teacher in modern classrooms.

The ETEP, which educates teachers of English for secondary and high schools, is a typical English teacher education program in Vietnam. All English teacher education programs are developed from the framework supported by the Ministry of Education and Training (H.T.M. Nguyen, 2017). The implementation of these programs is, therefore, somewhat similar. Currently, the ETCF is used as a new guideline for English teacher education programs to redesign themselves so that they can educate teachers of English who meet the new standards of English teaching (NFL 2020 Project, 2008). Yet, what to change and how to change need to be carefully considered.

In evaluation research, the evaluation is conducted when there is a need to have an assessment of a program for program improvement or decision making (Glass & Worthen, 1972a, 1972b). With the purpose of finding what and how to change within English teacher education programs, the research employing a needs assessment was conducted on the ETEP, a typical English teacher education program in Vietnam. The needs assessment on the ETEP was conducted to identify the extent to which the ETEP meets its students' needs. The most significant contribution of the research to the ETEP in particular and to English teacher education in Vietnam is an understanding of students' actual needs and students' overall satisfaction. Based on such information, implications for improving ETEP and other similar English teacher education programs are suggested.

Literature Review

Recognizing the needs or making needs assessment is necessary in order to make decisions in education. Therefore, conducting needs assessments is essential in education, especially when changes should be made to educational programs for improvements or for curriculum development (Peng, 1983).

Previous Studies

It has been revealed from numerous studies that the proportion of in-service teachers of English from primary schools to high schools in Vietnam who meet the language proficiency requirements is quite low even though there have been improvements in the number (Nguyen & Mai, 2015; NFL 2020 project, 2016). The language proficiency requirement for primary and secondary school teachers of English is level 4 in the Vietnamese Six Level Framework of Language Proficiency (VSTEP) or B2 in the Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR). High school teachers of English are required to meet level 5 or C1 in CEFR. The VSTEP follows a six-level proficiency band (level 1 to level 6), which matches the equivalence to the six-level bands of the CEFR (A1 to C2).

Table 1: Percentage of Teachers Who Met Language Proficiency Requirements

Teachers' levels	2011-2012	2014-2015
Primary school teachers	17%	55%
Lower secondary school teachers	13%	56%
Senior secondary school teachers	8%	48%

(Le et al., 2017)

As shown in Table 1, the percentage of school teachers of English who met the language proficiency requirements is quite low even though there has been an increase in the percentage. Specifically, a mere 17% of primary teachers of English, 13% of lower secondary teachers of

English, and only 8% of senior secondary teachers of English satisfied the language proficiency requirement in the period from 2011 to 2012. The rates rose to 55% of primary teachers of English, 56% of lower secondary teachers of English and 48% of senior secondary teachers of English who met the English proficiency requirements between 2014 and 2015. The reasons for this low quality are numerous. According to H. T.M. Nguyen (2017), out-dated pre-service English teacher education programs are one of these reasons. Such fact raises the issue of making changes to the pre-service English teacher education programs. Yet, how to change and what to change are difficult issues.

Besides in-service teacher training, pre-service English teacher education in Vietnam has also received a lot of attention from researchers. One of the major findings regarding English teacher education programs in Vietnam is the ineffectiveness of teaching practicum, particularly in the way it has been conducted (H. T. M. Nguyen, 2017). It was supposed that during the teaching practicum, students learnt how to teach from school teachers by observing their lessons, getting feedback and working with them. Yet, the reality was quite different. Pre-service teachers of English had been observed to merely show alignment with school teachers by imitating their way of teaching, rather than applying what they had learned from methodological courses at universities (Le, 2013). It would have been fine if school teachers had adopted modern teaching methods in their lessons. However, in Vietnam, traditional teaching methods such as the grammar translation approach are still used by school teachers (H. T. M. Nguyen, 2017). A similar picture is also seen in many other countries in the world. English teacher education in China is also found to have unsatisfactory quality due to a lack of practice (Hu, 2005). There is a need to reform the pre-service teachers' teaching practicum there due to the poor implementation of teaching practicum (Campbell & Hu, 2010; Yan & He, 2010). In Singapore, it has been found that mentoring for EFL pre-service teachers is not effective, and Malaysia also faces a similar problem for student teachers' internships (H.T.M. Nguyen, 2017, Vo et al, 2018). One suggested measure to overcome this shortcoming is the adoption of a more responsive mentoring process by the mentor teachers and/or peers. (Nguyen & Hudson, 2012; Nguyen & Baldauf, R., 2010; H. T. M. Nguyen, 2017).

Another key finding concerns the schism between theory and practice in pre-service English teacher education (H. T. M. Nguyen, 2017), particularly the lack of focus on soft skills development (Pachauri & Yadav, 2014). Yet, soft skills such as communication, leadership and cooperation are the prerequisites of 21st century teachers. Thus far, there has only been a lukewarm response to the issue. It appears that further investigation needs to be carried out for more improvement in English teacher education and training (Le, 2001, 2013).

The low quality of in-service English teacher training and pre-service English teacher education programs in Vietnam stimulates the Vietnamese Ministry of Education and Training (MOET) and researchers alike to conduct more studies on English teacher education in order to upgrade the

teaching and learning of English. It is hoped that further in-depth studies will be able to bridge the gap in research and also throw more light for program designers and curriculum developers in order to help them improve the ETEP.

English Teacher Education in The Public University

In Vietnam, the Public University is one of the major institutions charged with foreign language teacher education, and it is considered to be the largest university of foreign languages in the centre of Vietnam. The ETEP is one of the language teacher education programs of the Language Teacher Education department, one of the eight departments in the Public University. The ETEP aims at educating teachers of English for secondary and high schools. There are 16 lecturers in the English Teacher Education division, with a total number of students of the ETEP standing at 271 at the time of this study. The ETEP has a long history, and it has been one of the main programs of the Public University since its establishment in 1985. The program has been continuously revised at the university level to keep it up-to-date and relevant. The document version of the ETEP used in this needs assessment is the 2015 version.

Method

General background of the research

Pre-service English teacher education programs, which educate teachers of English for secondary and high schools, consist of two components: a professional component and a general component. The two components are worth in total approximately 150 credits. Both the general component and the professional component are developed based on the framework supported by the Ministry of Education and Training. The framework provides details on the kinds of subjects to be studied, and suggests the amount of credits for each subject. Yet, the university has flexibility in choosing subjects, and allocating the amount of credits to specific subjects when it designs its own program and curriculum.

The professional component includes English proficiency development and pedagogical skill and development, among which teaching practicum is a key part for developing the ability of how to teach (Vo, 2018). Often, students have a three-week field trip in their third year to familiarize themselves with the school environment and pupils, and in their fourth year a five week teaching practicum to learn and practice teaching. Yet, in the ETEP, students have only one chance for the teaching practicum in the final year.

Participants

The total number of ETEP students enrolled into the program was 271 at the time of this study. These students are being educated to be teachers of English at secondary and high schools. However, the first-year students were not considered in this study as they had just enrolled in the ETEP. There were a total of 57 students who enrolled in Year 1. Invitations to take part in the questionnaire were, thus, sent out through email and Facebook to the rest of the students (214). They were asked to answer the questionnaire by selecting the importance level and their satisfaction level for each item on the questionnaire. A total of 200 of students responded positively and in time to the questionnaire. However, 13 respondents were removed from the list of respondents as they did not complete the questionnaire fully. The demography features of the participants are shown in Table 2.

Table 2. Demographic Features of Sample Population

Total of valid responses: 187		**Number**	**Percentage**
Gender	Male	9	4.8%
	Female	178	95.2%
Current class level	2nd year	51	27.3%
	3rd year	75	40.1%
	4th year	61	32.6%
Age	19	40	21.4%
	20	78	41.7%
	21	58	31%
	22	10	5.3%
	25	1	0.5%

Research design and procedure

This research uses a needs assessment for the research design and procedure. The term "needs" in the needs assessment refers to the measurable gap or discrepancy between the current outcomes and desired outcomes, or between "what is" and "what should be" (Messner, 2009; Watkins et al., 2012). With such a meaning of 'needs", needs assessment is defined as a process that is designed to determine a desired or required situation in the area assessed, the present or real situation, and a priority ranking of the kinds and degree of discrepancies (Peng, 1983). According to Kaufman (1985, cited in Stewart & Cuffman, 1996), "needs assessments involve identifying and justifying gaps in results, and placing gaps in prioritized order for attention" (p.2). Kaufman (1994) considers needs assessment as the process of identifying and prioritizing performance needs.

Needs assessment consists of three phases: pre-assessment, assessment, post-assessment (Altschuld, 2010). During the first phase, the overall scope and plan for the assessment are determined. The first phase focuses on existing information rather than on collecting new data. The second phase aims at implementing the assessment to generate information. Phase 3 involves sharing and using information to guide decisions.

Besides Altschuld's (2010) three-phase framework, Watkins et al. (2012) propose a somewhat similar three-step procedure to conduct a needs assessment. These three steps are identifying, analysing and deciding. As suggested by the name, the first step is to identify needs-gaps between desired and current results. The analysing step is the analysis process that links "needs with the information required to make decisions about what action should be taken" (Watkins et al., 2012, p.48). The final step is to make decisions based on the analysis.

In this study, based on the principles of the two frameworks above, the conceptual framework for the research was constructed in three phases: identifying, analysing, and making decisions. In this framework, the three phases of needs assessment discussed in the literature review are adopted as the heuristics for the research procedures. It began with a document review to identify the main objectives of the program, followed by the design of the questionnaire for identifying the students' needs. Specifically, in this study, the dual-response survey developed from Noel-Levitz (1994, 2014) was selected for use because the survey is constructed to visualize needs and they are specially designed for program evaluation. Then, quantitative data were collected through the use of dual response questionnaires, which allows researchers to collect information regarding both current and desired performance (Watkins et al., 2012) to identify needs. This was followed by data analysis and interpretation as the second step of the needs assessment, the "analysing step". In the second step, the performance gaps were calculated to identify the needs, and the mean was also calculated to see the general satisfaction of students. In the "deciding step", based on the findings so far, decisions on what and how to change were made in relation to previous studies in the field.

Research instrument

The main data elicitation instrument is the questionnaire adapted from Noel-Levitz's priorities survey (1994, 2014), the four-year university-and-college version. The original survey was primarily developed by Noel-Leviz for traditional-aged students in undergraduate programs (Noel-Levitz, 1994, 2014). Yet, what is interesting from the survey is that it gives users flexibility to add items or only use some parts of the survey, depending on the researchers' purposes. Therefore, many versions of the survey can be found in the literature (Zhang et al., 2011; Sinclair, 2012; Hanchell, 2014). In this study, items in part 2 of the questionnaire were developed from the objectives of the ETEP because the focus of the study is to find out the specific needs of students regarding the program's objectives.

The questionnaire has three parts. The first part is reserved for demographic features. The second part has 17 items in order to identify the strengths and challenges of the program, and the last part includes questions to gain information on students' overall satisfaction. The dual response questionnaire uses a 7-point Likert scale, with responses designed to gather participants' opinions

on degrees of importance and satisfaction. The items on degree of importance have scales ranging from "not important at all (1)" to" very important (7)", while the satisfaction items have scales ranging from "not satisfied at all (1)" to "very satisfied (7)".

For the validity of the questionnaire, before the main study was carried out, a pilot study was conducted with 15% of the sample population (Baker, 1994). The pilot study yielded a reliability score (Cronbach's alpha) of .978 for the set of importance scores, and .932 for the set of satisfaction scores. For the purpose of validity, the questionnaire was also sent to three experts, who are specialised in either education or TESOL, for content validation. Based on the pilot study and comments from the experts, the questionnaire was modified for better comprehensibility in order to better serve the purpose of the intended evaluation. The reliability value of the questionnaire in the main study was relatively high with .957 for importance scores and .927 for satisfaction scores.

Data Analysis

The quantitative data obtained from the questionnaires were analysed using IBM SPSS version 20. Reliability, Mean, Standard Deviation, and Performance Gap (the difference between the mean for important scores and the mean for satisfaction scores) measures were coded for the data analysis (Noel-Levitz, 2015). The performance gap is calculated by means for importance scores minus means for satisfaction scores. In other words, the performance gap shows the distance between the actual outcomes and the desired outcomes. Since effect size is defined as the difference between two means divided by the pooled standard deviation (Cohen, 1988), the size of the performance gap can be determined by Table 3.

Table 3. Interpretation of Effect Size (Cohen, 1988)

Value of effect size	*Effect*
ES < 0.2	Nil
0.2 ≥ ES < 0.5	Small
0.5 ≥ ES < 0.8	Medium
ES ≥ 0.8	Large

Results and Discussion

Students' Overall Satisfaction

Students' satisfaction of the ETEP was assessed via the first question of part 3 of the questionnaire. According to Cohen et al. (2007), with the questionnaire employing a seven-point Likert scale, the level of satisfaction score is low if the score is between 1 and 3; the level is medium with the score from 4 to 5, and the level is high with the score between 6 and 7.

Table 4. Students' Overall Satisfaction

Questions	Mean	Level of Satisfaction
1. So far, how has your college experience met your expectations?	3.9	Medium
2. Rate your overall satisfaction with your experience here thus far.	4.1	Medium
3. All in all, if you had the chance to choose a major for your university education again, would you enroll in the English Teacher Education Program?	4.7	Medium

Table 5 shows that the satisfaction level of all three questions is medium, which denotes that the overall level of satisfaction the professional component of the ETEP brings to students is at the medium level. The first question elicited a response pertaining to the extent to which the program met their expectation. Findings show that approximately 36.9% of students found their experience with their university "about what was expected", while 21.4% thought their college experience was "worse than was expected". 17.1% felt their college experience was better than they expected. 13.9% thought they had quite a bit worse experience than they expected. "Much better than I expected" and "much worse than I expected" accounted for 2.7% and 1.1 % of the responses respectively.

When asked to rate their overall satisfaction with the program, those who had no idea (neutral) occupied the highest percentage with 32.1%. Next was "somewhat satisfied" with 23.5%, and "satisfied" with 14.4%. "Somewhat dissatisfied" and "dissatisfied" had 20% and 10% responses respectively. "Very satisfied" had the lowest percentage with 0.5%. "Not satisfied at all" recorded only 1.1% as well.

Regarding the item on whether they would choose to enrol in the ETEP if they had the chance to choose the major again, the choice of "maybe yes" recorded 25.1%, followed by "probably yes" at 19.3%, and "definitely yes" at 14.4%. In contrast, the percentages of those who would not choose to enrol in the ETEP again yielded lower responses, with "maybe not" at 16.6%, "probably not" at 5.9%, and "definitely not" at 3.2%. Contrasting the degree of positive responses (from "maybe yes" to "definitely yes") with the negative responses (from "maybe not to definitely not"), there is an obvious shift to the positive (58.8% positive against 25.7% negative, and neutral 15.5%), implying that the students felt confident in the program. In sum, the ETEP was found to have met the students' overall expectations at a medium level.

The Extent to Which the ETEP Meets Its Students' Needs

To find out if the ETEP met the needs of students, an analysis was carried out on the responses of the 17 items in part two of the questionnaire, and a document review of Version 2015 of the ETEP's curriculum (Public University, 2015). The first step in conducting a needs assessment is to identify the needs of the learners, that is, by finding out the gap between the desired and current results (Witkin, 1984). The larger the gap, the lesser the ETEP meets students' needs, or vice versa. The means of all the items vary between 4 and 6. Standard deviations fluctuate around the 1.3 value.

Table 5. Performance Gaps

Item number	Items	Importance mean (s.d.)	Satisfaction mean (s.d.)	Performance gap
C	**Concerns for Students (cluster)**	5.49 (1.06)	4.49 (1.01)	1.00
1	Students feel sense of belonging to the department.	4.98 (1.55)	4.32 (1.44)	0.67
2	Program's objectives are accessible to students.	5.43 (1.38)	4.41 (1.28)	1.02
3	Program's curriculum is accessible to students.	5.49 (1.38)	4.44 (1.29)	1.05
4	The staff at this university are caring and helpful.	5.55 (1.45)	4.41 (1.50)	1.14
5	The teaching staff are knowledgeable.	6.19 (1.22)	5.09 (1.43)	1.10
6	My academic advisor is concerned about my success as an individual.	5.32 (1.45)	4.25 (1.54)	1.07
	Study Requirement (cluster)	5.70 (1.18)	4.69 (1.11)	1.01
7	My academic advisor is knowledgeable about requirements in my majors.	5.67 (1.34)	4.76 (1.41)	.91
8	Graduation requirements are clear.	5.90 (1.34)	4.89 (1.51)	1.01
9	Graduation requirements are reasonable.	5.80 (1.40)	4.69 (1.49)	1.11
10	There are many options for courses in the program.	5.41 (1.45)	4.42 (1.40)	.99
15	I have clear understanding on what I am expected to learn in classes.	5.74 (1.51)	4.47 (1.33)	1.27
	Career Development (cluster)	5.79 (1.21)	4.75 (1.03)	1.04
11	I can develop the sufficient ability to use English at C1/ level 5.	5.83 (1.35)	4.74 (1.37)	1.09

12	I can develop my pedagogical knowledge for my teaching career later.	5.96 (1.39)	4.82 (1.30)	1.14
13	I can develop my pedagogical skills for my teaching career later.	5.84 (1.38)	4.80 (1.47)	1.04
14	My program offers me opportunities to develop soft skills.	5.72 (1.40)	4.34 (1.40)	1.38
16	My studies are closely related to my career development.	5.71 (1.39)	4.82 (1.37)	.89
17	Teaching practicum is useful for my career development.	5.71 (1.38)	4.95 (1.27)	.76

*** Scale:** The dual response questionnaire for students has two scales. On the left is the scale of seven points from "not important at all" to "very important"; on the right is the scale of seven points from "not satisfied at all" to "very satisfied"

The specific level of how aligned the ETEP is with the needs of students is measured by looking at the performance gaps of the 17 items of part two in the questionnaire. As shown in Table 5 above, the largest performance gap belongs to item 14, with a gap of 1.38 on the ability of opportunities to develop soft skills, and the lowest one is item 1 with a gap of .67 on the students' sense of belonging. In other words, the ETEP did well in cultivating the students' sense of belonging but did not do enough to create opportunities to develop soft skills. The implications of these differences will be discussed in the next section.

The larger the gaps are, the higher the needs of students are on such aspects (Noel-Levitz, 2014, 2015; Messner, 2009). The average of the gaps is 1.037. A gap that is above such a level is considered to be high; one that is below the average is low, and one around the average level is medium.

Concerns for Students

Items around the "Concerns for students" (items 1 to 6) have the performance gaps ranging from .67 to 1.14. Overall, this cluster produced a performance gap of 1.00. After dividing this with the pooled standard deviation of 1.15, the effect size of 0.87 was produced. This shows that the gap for concerns for students is large.

The first item (Item 1) has the lowest performance gap (.67) among the 17 items. This means that the ETEP had succeeded in fostering a sense of belonging amongst the students with the department where they were being trained. Surprisingly, the students also felt that their academic advisors did not care enough for them to succeed individually (Item 6: performance gap of 1.07). Likewise, they also felt that the faculty was not caring and helpful enough, with a performance gap of item 4 being much higher than the average level (Item 4: performance gap = 1.14). In fact, students of the ETEP do not receive much support from their academic advisors due to the limited

timetable. Students and academic advisors are scheduled to meet once a week (Public University, 2015).

Study Requirement

Study requirement has 5 items (items 7, 8, 9, 10 and 15) on course requirement and graduation requirement. Overall, the cluster scored a performance gap of 1.01. With the pooled standard deviation of 1.25, the effect size was found to be 0.82, showing that the performance gap for study requirement is large.

Graduation requirements are decided by MOET. Besides accumulating 148 credits, students are required for graduation to obtain an English certificate at the C1 level of the CEFR, or level five of the VSTEP, and one other foreign language (Korean, Russian, Chinese or French) at A2 of the CEFR or level 2 of the VSTEP. Each course of the ETEP has its own requirement stated in its syllabus. Students are required to fulfil the requirement as part of the course assessment.

The ETEP does not meet students' needs to know about the course requirements, with its performance gap being very high (1.27), the second highest among the 17 items. Students are not introduced to what they are expected to do before the course, and they do not even know what they need to master during the course for the final exam.

However, the graduation requirement is presented in the handbook for students, which is delivered to them on their first day at university. Students have to obtain a C1 level in English and a A2 level for one other foreign language. Therefore, the performance gap of item 8 on the clarity of graduation requirement in the student questionnaire is low (1.01). Yet, the requirement is quite high in comparison to the reality of the English teacher quality of language proficiency in Vietnam. It was reported in 2013 that the number of in-service teachers of English in Vietnam who met the English proficiency requirement was quite low. At that time, 83% of primary English teachers, 87.1% of lower secondary English teachers and 91.8% of senior secondary English teachers did not meet the requirement of English language proficiency required by the Vietnamese Ministry of Education and Training (Nguyen, 2013). The performance gap of item 9 on the reasonability of graduation requirement is 1.11. That is also the reason why students' needs for developing the ability to use English at C1 is also high (1.09), even though students have 52 credits for English language courses (Public University, 2015).

Career Development

Items 11, 12, 13, 14, 16, and 17 show the main objectives of the professional component of the program. This cluster produced a performance gap of 1.04. With the pooled standard deviation of

1.26, the effect size is calculated to be 0.83, showing a large performance gap in career development.

Ability to develop language proficiency

Item 11 on the ability of the students to develop English to C1 level has a high performance gap of 1.09. It means that the ETEP does not satisfy this students' need well. The total credits of the ETEP is 148, of which 52 is reserved for developing English language proficiency. A document review shows that in 2016 50 out of 56 students of the ETEP obtained a C1 certificate at the end of the program.

In the Vietnamese context, while the English proficiency of teachers of English is low (Nguyen, 2013; Le et al., 2017), developing students' English proficiency is, in fact, the major part of the English teacher education program. The ETEP designers need to make changes to the English language courses to enhance students' English language capacity.

Ability to develop pedagogical knowledge and skills

The ETEP has not really met such students' needs to develop pedagogical knowledge and skills well, with the performance gaps on items 12 and 13 (1.14 and 1.04) above the average level. Students have limited time for methodological courses: 16 credits out of 148 credits for the whole program. With such limited time, program designers barely include basic courses for methodological knowledge in the ETEP's curriculum. Actually, most of the English teacher education programs in Vietnam, including the ETEP, "focus much on the subject knowledge and theory without sufficiently providing the pre-service teachers with teaching skills" (H.T.M. Nguyen, 2017:11). According to one ETEP designer of methodological courses, the group of designers had to carefully consider the amount of time allocated for each course of the ETEP, and they regretted not being able to add some interesting courses of methodology, like curriculum development or syllabus design, to the ETEP curriculum. Besides, the time allocated for teaching practicum is only eight weeks at high schools. During the teaching practicum, each student has eight periods per week to teach pupils (Public University, 2015). However, the actual number depends on the school teachers who are the students' instructors during the teaching practicum. As a result, students are not given enough opportunities for methodological skill development during the program. This issue is common in many English teacher education programs in Vietnam and in Southeast Asian countries where the process of learning to teach is, in fact, the process of transferring knowledge and experience from experienced teachers to student teachers (Phan & Locke, 2016). Generally speaking, in Vietnam, teacher trainees have very little chance of studying methodology and of learning how to teach (H.T. M. Nguyen, 2017).

However, item 17 on teaching practicum has a very low performance gap (.76). It means that the ETEP has been successful in meeting students' needs on teaching practicum. The ETEP has a good teaching practicum as compared with other English teacher education programs in which the teaching practicum do not meet students' expectations (Le, 2011; Nguyen & Hudson, 2012; H. T. M. Nguyen, 2017).

Ability to develop soft skills

Item 14 on soft skill development has the highest performance gap (1.34), which denotes that this need of students is the least met by the ETEP. Except for the course "Critical thinking", the ETEP does not have any special courses to develop soft skills for students. The soft skills that the ETEP aims at providing students with are presentation skills, and cooperative skills (Public University, 2015). Besides, an insufficient development of soft skills in the ETEP also comes from the students' lifelong habit of learning since they began their English studies at primary school. In Vietnam, students tend to learn by heart when they study English and other subjects (To, 2007). The out-dated methodology, such as an audio-lingual teaching methodology with a teacher-centred approach or a grammar translation approach, is still used in English teaching in Vietnam (Kam, 2002; H. T. M. Nguyen, 2012, 2017).

Implications

The needs assessment of the ETEP has provided useful information on the extent to which the program meets its students' needs. Overall, the program has met students' needs at a medium level. Yet, the level to which the program meets its students' needs varies. The ETEP has well satisfied students' needs on the sense of belonging to the department and the usefulness of the teaching practicum. The need for developing soft skills is least met by the ETEP. The findings uncover the fact that there should be a stronger link between theory and practice in the ETEP so that it can satisfy students' needs on career development, especially their soft skills and pedagogical skills.

The connection between practice and theory can be strengthened by integrating technology into the curriculum (Docksatder, 1999; Dias & Atkinson, 2001; Afshari et al., 2009), improving the effectiveness of the teaching practicum and redesigning the framework for English teacher education programs (Le, 2013; Nguyen & Hudson, 2012; H. T. M. Nguyen, 2017), and integrating soft skill development into the curriculum in English teacher education programs in general and the ETEP in particular.

As suggested by a lot of the research, the effectiveness of the teaching practicum can be enhanced by a better mentoring process, and better connection between lecturers and school teachers (Le, 2013; Nguyen & Hudson, 2012; H. T. M. Nguyen, 2017). During the teaching practicum,

mentoring is "the most common mechanism used to develop pre-service teachers' instructional practice in their classroom" (H. T. M. Nguyen, 2017, p.1). The quality of mentoring depends on many factors, such as the need for substantial investments of time, money, effort and resources, and the roles of teachers as role models and mentors (Dyer & Nguyen, 1999; Saban, 2002; Nguyen & Baldauf, 2010).

Instead of relying too much on the mentoring of school teachers, other methods like peer mentoring, reflections and individual self-evaluation should be carried out (H. T. M. Nguyen, 2017). Among these methods, peer mentoring is found to be effective in helping students to develop their pedagogical skills during the teaching practicum (H. T. M. Nguyen, 2017). In order to conduct peer mentoring, students are divided into small groups of around 4 to 5 students at high schools. Students in groups work together to review the lesson plans of their peers. The lesson plans are edited before they are used. The whole group also observes the lesson for evaluation. After that, the whole group discusses what is achieved and what should be improved for the lesson to be conducted better.

In addition, to increase the effectiveness of the teaching practicum, there must be a good connection between lecturers and school teachers, lecturers' in-time and effective support for students, and school teachers' sufficient mentoring for students. First, the connection between lecturers of the ETEP who support students during the teaching practicum at high schools and teachers mentoring students at schools should be strengthened. Currently, lecturers and school teachers often work somehow independently during the teaching practicum. Lecturers of the ETEP are responsible for supporting students in case they need it. School teachers have a more important role in helping students to learn how to teach through observation and actual teaching. Lecturers cannot intervene in what school teachers do, which may lead to the fact that instead of applying what the students have learnt from the methodological courses into teaching, students tend to imitate the teaching method that they see school teachers adopting in their teaching (Le, 2013). It means that their development during a first teaching experience depends on the school teachers who tend to teach in the traditional way, so that pupils can pass grammar-oriented examinations. Therefore, no matter how well students are prepared to teach in the modern way at the university, what they get when leaving the university may be the traditional methods of English language teaching (Le, 2001). Second, there should be discussions between lecturers and school teachers to decide what lessons and what methods are used before the student's observation. In this case, lecturers can control the teaching methods in the model lesson and can make sure that the real teaching at high schools that students are going to observe uses up-to-date teaching methods.

The ETEP designers need to consider making changes to its curriculum so that the students' needs to develop soft skills is better met. Pachauri and Yadav (2014) identify seven soft skills that English teachers should have: communicative skills, critical thinking skills, problem solving skills, teamwork force, life- long learning and information management, entrepreneurial skills, ethics,

moral and professionalism, and leadership skills. These skills should be included in courses of the ETEP.

Pachauri and Yadav (2014) suggest three models for integrating soft skills development into the curriculum: “stand alone subject model”, “embedded model” and a combination between “stand alone subject model” and “embedded model”. “Stand alone subject model” is the one which uses the approach to provide students with opportunities to develop soft skills through specific courses on certain kinds of soft skills. “Embedded model” uses the approach of integrating soft skills throughout the teaching and learning activities of the courses of the curriculum. The last model is the combination of the first two models where there are both courses for soft skill development and soft skills are integrated into the other courses of the curriculum. Soft skills can be integrated into the curriculum of the ETEP by using the “embedded model”. For certain courses, the ETEP designers can select some appropriate skills to integrate. For example, communicative skills can be developed through presentations and discussions in language courses. Critical thinking and problem-solving skills are achieved through projects and group assignments in pedagogical courses. Furthermore, in order to make sure lecturers organize such activities in class, specific activities to develop certain soft skills should be specified in both the course requirements and assessment.

Finally, the integration of technology into the ETEP curriculum is also one solution to improve the ETEP. According to Schmidt (1998), there are two possible approaches to integrate technology into teacher education programs. The first is offering an instructional technology course. This has been used by the ETEP, which has one 30 period course on technology in education (Public University, 2015). Yet, this approach proves to be ineffective as it focuses on teaching students how to use technology rather than how to apply it in real teaching contexts. The second approach is to integrate technology into all courses of the teacher education program. This approach is, in fact, suitable for the ETEP because it not only facilitates the teaching and learning process by providing more opportunities for practice but also familiarizes students with technology use in education. Yet, as lecturers of the ETEP are not themselves good at technology in education (Ho, 2014), it is suggested that training on technology in education for lecturers be held in order to help them to have enough experience to be able to apply technology in their lessons. Those lecturers who are responsible for methodological courses should especially be required to use as much technology in their lessons as possible. In addition, the university can encourage lecturers to apply technology in their lessons through policies such as giving lecturers bonuses for their technology application.

Conclusion

Generally, the performance gaps for the concerns for students, study requirements, and career development are found to be large. The level to which the program meets its students' needs varies. The ETEP has well satisfied students' needs on the sense of belonging to the department, and the usefulness of the teaching practicum. Among all the needs, the need for developing soft skills is least met by the ETEP. The findings uncover that there should be a stronger link between theory and practice in the ETEP so that it can better satisfy students' needs on career development.

In view of the findings above, suggestions were made for the improvement of the future implementation of the ETEP and also other English teacher education programs. The gap between practice and theory can be bridged by integrating technology and soft skill development into the curriculum of the ETEP courses; enhancing the implementation of the teaching practicum with systematic monitoring mechanisms, peer mentoring, reflections and individual self-evaluation; and redesigning the framework for English teacher education programs.

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ASSESSING MODEL OF TEACHING BELIEFS AND PRACTICES: USING STRUCTURAL EQUATION MODELLING

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ABSTRACT

Reviewing the literature review, there is a need to an alternate model to explain the phenomenon and the relationship between Lecturers' Beliefs on Teaching and Practices for the improvement of lecturers' professional development. Thus, this study aims to assess the measurement model for teaching beliefs functions and practices among lecturers. The sample of this study was 103 lecturers from Community Colleges, Yemen. Structural Equation Modelling was used to assess and analyse the proposed model for lecturers' beliefs on teaching functions and practices. Findings of the modified model showed the goodness fit indices of proposed measurement model was improved and showed good goodness of fit. Based on the findings, a tested model assessment can be used as a recommended model for Lecturers' Beliefs on Teaching Functions and Lecturers' Teaching Practices among community colleges' lecturers.

Keywords: lecturers' beliefs, teaching practices measurement model and assessment,

Introduction

Lecturers' beliefs and their understanding of teaching as well as learning play an important role in their classroom practices and in their professional growth (Prawat, 1992; Bandura, 1986; Harste and Burke, 1977; Kuzborska, 2011; Mamsour, 2009; Pajares and Nespor, 1992). Lectures make decisions about classroom instruction in light of theoretical beliefs they hold about teaching and learning. Lecturers' beliefs affect their objectives, procedures, materials, interaction patterns of the classroom, their teaching functions, their students and the institutions where they work. Lecturers interpret, respondent and innovate only in ways related to their current beliefs and practices. Therefore, many researchers emphasized the need of investigating lecturers' thinking and teaching practices (Pajares, 1992; Pajares and Pomeroy, 1993; Clark, 1988, Kennedy, 1997; Mansour, 2009; Standen, 2002; Mansour, 2010; Gahin, 2001; Abell and Roth, 1992).

Lecturers' classroom practices and their professional growth influenced by their beliefs of teaching and learning (Prawat, 1992; Harste and Burke, 1977; Kuzborska, 2011; Mamsour, 2009; Pajares and Nespor, 1992; Albion, 2001; Mofreh, 2018). Lectures decide about classroom instruction theoretical beliefs about teaching and learning. Therefore, many researchers pointed the need of examining lecturers' thinking and teaching practices (Pajares, 1992; Pajares and Pomeroy, 1993; Clark, 1988, Kennedy, 1997; Mansour, 2009; Standen, 2002; Mansour, 2010; Abelson, 1979). Several reasons explain the complexity of the relationship between lecturers' beliefs and practices including their knowledge, goals, educational context, and pedagogy (Mansour, 2009; Gahin, 2001; Abell and Roth, 1992, Mofreh, et.al, 2013).

Gauging teacher quality in a developing context like Yemen is difficult in the absence of standardized evaluation metrics. However, the Ministry of Education and many researchers have reported repeatedly on what they observed to be low teacher quality (Ministry of Education, 2008; Dyer, 2007, Guarcello et al. 2006, Yuki and Kameyama, 2013). These reports draw from quantitative figures on teacher qualifications and attendance, qualitative observations on classroom practices, and student response survey data. Collectively, this data paints a dire portrait of teacher quality in Yemen's education system. According to the literature, there are four key indicators that imply low quality in teaching: (i) lack of qualifications and professional training, (ii) teacher absenteeism, (iii) prevalence of teacher-centered methodologies and other negative classroom practices, and (iv) the prevalence of emotional and physical abuse by teachers.

Community Colleges (CC) in Yemen (CC) recognized that effective lecturers are an important factor to continue its mission and to build skilled graduated students for the labor market. There is a need to understand how lecturers think about their teaching functions and practices. Beliefs of lecturers may play an important role in explaining the individuals' change of their academic

performance of. These beliefs were used to assess new thoughts and concepts about teaching that lecturers confront in their teaching practice in classes (Kennedy, 1997). Therefore, those teachings that are shaped their beliefs which are recognized and characterized as “what is new?” (Kenndey, 1997; Bruner, 1996; Raths, 2001). These beliefs provides lecturers with possible examples of ways to practice those promoted thoughts, solving conflicts between different beliefs, organizational supports, constraints and similar practices.

An understanding of the relationship between Lecturers’ Beliefs on Teaching and Teaching Practices is important for the improvement of lecturers’ professional development (Kuzborska, 2011; Strong 2003, Al-Amri, 2012; Hiadar 2009). Lecturers make decisions about classroom instruction in the light that theoretical beliefs have on teaching and learning (Harste and Burke, 1977). That is, lecturers interpret and respond to innovations only in the ways which relate to their existing beliefs and practices. Therefore, many researchers emphasized the need of researching the lecturer’s beliefs and its relation to teaching practices. Thus, this study aims to assess the measurement model which can be used to measures the relationship between the lecturers’ beliefs of teaching functions and their teaching practices.

Background of the Problem

According to the report by Alabidi, (2014), Community Colleges (CC) in Yemen has a lack of written policies and regulations that clearly spells out the management expectations for the teacher as a responsible academic (in terms of reporting grades, documenting students’ progress, seek of professional growth, attending meetings, participation in committees and activities, etc.). In other words, if we want to evaluate the academics’ professional performance, community colleges first need to have its expectations clearly stated. Therefore, CC does not have expertise in planning and coordinating the professional growth of its academic staff. Therefore, lack of experienced personnel to be in charge of teacher’s professional development is a great barrier.

To make lecturers of community colleges implement "teach better", it only makes sense to provide the skills they need at the levels they ask for and in a way that makes learning the skills practical for them. These skills must focus on the process of learning; increasing opportunities for quality educational performance and success; offering positive orientation, guidance, and direction through coaching; motivating students to increase satisfaction for and development of learning to learn skills; recognizing and encouraging students' desire to learn; working to limit and/or eliminate learning obstacles; using effective performance as expectation by which to improve students; and utilizing intellectual competencies to maximize instruction effectiveness (Sarapin and Vorvoreanu, 1999; Campbell et. al., 2004; Campbell and Norton, 2007; Chen, 2008).

As mentioned in the report by Alabidi, (2014) Community colleges in Yemen has a lack of written policies and regulations that clearly spells out the management expectations for the teacher as a responsible academic (in terms of reporting grades, documenting students' progress, seek of professional growth, attending meetings, participation in committees and activities, etc.). In other words, if we want to evaluate the academics' professional performance, community colleges first need to have its expectations clearly stated. Therefore, Sanaa' Community College does not have expertise in planning and coordinating the professional growth of its academic staff. Therefore, lack of experienced personnel to be in charge of teacher's professional development is a great barrier.

According to the results of the survey carried out by the executive council of community colleges by Mullin et.al. (2013) about the employment of the faculty members during the past years, it can be concluded that:

i. All government community colleges have not fully committed to what came in the basic feasibility studies and the actual needs of the faculties with regard to the employment of teaching staff in terms of quantity or type (specialization).
ii. Most community colleges hired faculty with specialties that are not actually taught in those colleges, such as community colleges in Sana'a, Aden, Sanhan, Sayoon, and Dalea.
iii. All colleges do not employ professionals or technicians despite the importance of their roles in the educational process.
iv. Some administrative staff were moved to the Academic staff, causing internal and external pressure on the colleges without adhering to the academic standards.

The results mentioned above in the report of council of community colleges (2013) may indicate that the financial and administrative independence of these colleges that used in a wrong way (Alabidi, 2014). This led to deviations from the basic objective of the colleges. This is with respect to opening new disciplines or employment of teaching staff or sending the faculty for academic qualification.

Lecturers of community colleges may play passive role in teaching; they do not think creatively towards their teaching; they follow the traditional view in teaching and do not follow the new theories in teaching. Lecturers' lack of knowledge of their teaching functions may imply a lack of formal job descriptions of lecturers' responsibilities and roles, the absence of self-assessment for lecturers, the appraisal forms of appraising lectures may be designed in formal way and do not cover the teaching functions, and absence or lack of feedback of appraising lecturers from their assessors (Mullin et.al.; Alabidi, 2014, Mofreh, 2013). As a result, lecturers who refer to the traditional teaching theory cannot change their beliefs unless they change their style of teaching to change their beliefs and perceptions, which would lead to improvement in teaching practices.

Lecturer performance teaching at community colleges was low and affected the enhancement of their professional knowledge and experience (Mofreh et.al, 2013 and Alabidi, 2014). The lack of knowing lecturers' functions on teaching imply that low teaching practices reflects their professionalism. Lecturers' teaching professional identities arise from their images of lecturers, their beliefs and concepts of a "good lecturer" and their personal theories about teaching (Flores and Day, 2006; Lortie, 1975; Sugrue, 1997).

Literature review

Beliefs about Teaching and Learning

Teaching and learning have shifted from lecturers behaviours to lecturers subject knowledge and pedagogical knowledge and their beliefs and self-efficacy have been examined in order to identify the role such factors have in lecturers effectiveness. Attentions were given to lecturers' own beliefs about, and attitudes to, teaching and the subjects they teach, arguing that these deeper structures are more important to teaching quality than immediately observable behaviours (De Corte and Greer 1996, Fennema and Loef-Franke 1992, Thompson 1992, Askew et al.1997). Furthermore, research in psychology has seen a move away from traditional behaviourist models towards models stressing individuals' complex information processing strategies, metacognition and knowledge construction. The various models emerging (constructivism and information processing theory, for example) share an emphasis on pupils' active construction of learning, a view that differs from the 'stimulus-response' behaviourist models that underlie traditional lecturers' effectiveness research. Coupled with this has been an increasing emphasis in society on higher order thinking and processing, seen as necessary for societies to function competitively in an increasingly complex and knowledge-based economic order.

The beliefs about the nature of teaching and learning which include "direct transmission beliefs about learning and teaching" and "constructivist beliefs about learning and teaching These dimensions of these beliefs are well established in educational research at least in Western countries and have also received support elsewhere (De Corte and Greer 1996, Fennema and Loef-Franke 1992, Thompson 1992, Askew et al.1997 Kim, 2005; Campbell et.al., 2004). The direct transmission view of student learning implies the role of lecturers is to transfer knowledge in a clear and structured way, to explain the correct solutions to give students clear and resolve problems, and to ensure calm and concentration in the classroom. By contrast, a constructivist view focuses on students not as passive participants, but as active participants in the process of acquiring knowledge. Lecturers who holding this view emphasize facilitate student research, prefer to give students the opportunity to develop solutions to problems on their own, and allow students to play an active role in teaching activities. In this sense, the development of thinking and reasoning

processes stands out more than the acquisition of specific knowledge (Staub and Stern, 2002; Askew et al., 1997, Kim, 2005; Campbell et.al, 2004).

Beliefs Based on Constructivist View

Constructivist viewed that learning is seen as active and knowledge is constructed in the piecemeal expansion of networks of ideas by interaction and materials in the environment (Jarvis, 2006; Kynigos and Argyris, 2004; Standen, 2002; Aguirre and Speer, 2000; Lacorte and Canabal, 2005; Marshall, 1992; Mohamed, 2006). In constructivism view, lecturers of science promote group learning, in which students discuss two or three approaches to a given problem with little or no interference from the lecturers. However, traditional lecturers who see a given problem have a unique solution, while constructivist lecturers have a preference to find out how students see the problem and why their paths to solutions look promising for them. In addition, constructivist lecturers assist students to integrate their previous experiences to current situations (Yager, 1995). Mansour (2009) stated that science students seldom see anything about research having no relevance or applicability to their own lives.

Such views about teaching and learning are partly related to the values and beliefs of the culture that lecturers belong to (Kennedy and Kennedy 1998). Kennedy and Kennedy (1998) describe how national cultures and behaviours can affect pedagogical beliefs and cultures in the classroom. For example, there is a distinction between countries with large power distance measures (where power is concentrated in the hands of a few) and the distance measures which are small power (where power is less hierarchical and decentralized). They argued that cultures with high-power distance are more likely to be confirmed in the belief that the lecturer should be the authority in control of the dynamics in the classroom and in control of knowledge for transmission of education (Barnes, 1976). In contrast, in the cultures at the other end of the spectrum, the distribution of power in the classroom would be different, with the lecturer playing a facilitator role rather the authority.

Lecturer's Beliefs and Teaching Practices

Many researchers claim that implementing any reform program heavily be influenced by lecturers (Haney, Czerniak, and Lumpe, 1996; Levitt, 2002; Pajares, 1992; Jarvis, 2006; Campbell et al.., 2004; Campbell, 2007). Lecturers play an important role in educational institutions and classrooms change (Prawat, 1992). However, lecturers are also seen as the core obstacles to change their traditional beliefs. According to Bandura (1986), the decisions of an individual through his / her life are strongly influenced by his / her beliefs. Pajares argued that beliefs are "best indicators of the decisions individuals make throughout their lives". Lecturers' beliefs play an important role in deciding about curriculum and lecturers instruction program (Nespor and Pajares, 1992). In short, educational researchers have argued the need for a more detailed and direct research of the relationship between lecturers' beliefs and practices in education (Pajares, 1992 and Pomeroy,

1993). Therefore, the relationship between beliefs and teaching practices is well documented in the literature of science education.

Series of researches have studied the relation of lecturers' beliefs and teaching practices. Pajares (1992) in his study supported the idea of the influences of lecturers' beliefs on their performance in the classroom. Similarly, the value of a person who guides behaviors of life was developed by the person's beliefs (Ajzen, 1985). The beliefs of lecturers have a strong influence on teaching practices (Ernest, 1989). The beliefs and theories of lecturers were described as "the wealth of knowledge that lecturers have that affects their planning, interactive thoughts, and ideas and decisions" (Clark and Peterson, 1986).

Theoretical Framework

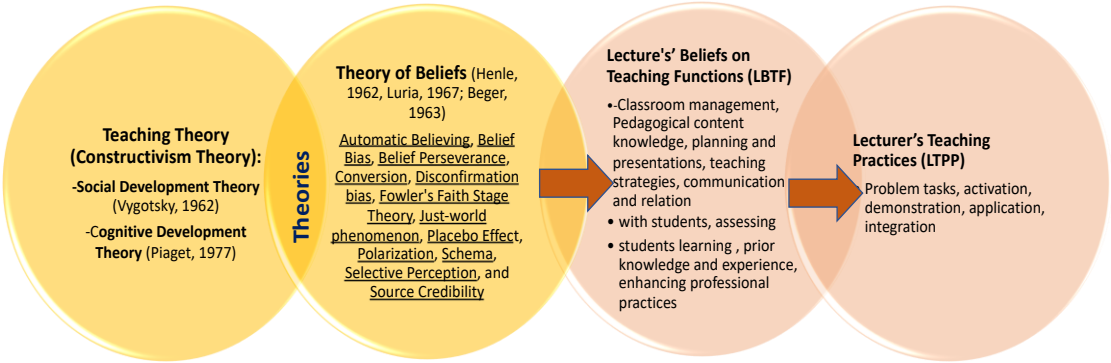

Figure 1: Theoretical framework

The theoretical framework of this study is based on constructivism theory including Piaget and Vygotsky' theories and Merrill's' first principles of instruction. The theoretical framework is the structure that can hold and support a theory of a research study (Casey, 1996; Swanson, 2013 and Blaxter and Hughes, 2010). A theoretical framework includes concepts, with their definitions, and existing theories that are used for particular research. Figure 1 shows the theoretical framework of this research.

The theoretical framework involved the variables the research aims to investigate such as Lectures' Beliefs on Teaching Functions (LBTF) as independent variable and Lecturers' Teaching Practices (LTP) as dependent variable, These concepts were investigated based on the research theory. Independence of interpreting one's own experience is emphasized by constructivism (Roth, 1994). In addition, the issue of teaching in the education literature is discussed from the point of view of the transference from theory to teaching practices (De Corte, 2000; Defazio, 2006, Randi and Corno, 2007). Many studies claimed that improving student learning and satisfaction can be achieved by implementing the first principle of instruction in teaching and learning (Merrill, 2006; Thomson, 2002; Frick et al, 2007). This model of first principle of instruction of Merrill is based on a constructivism theory as a theory of teaching and learning.

Structural Equation Modelling

Structural Equation Modelling (SEM) was used based on the objective of this study to assess the measurement model for the Lecturer's Beliefs on Teaching and Teaching Practice at community colleges. Several ordered steps were followed to test the model. These included developing the theoretical model, conducting the CFA, constructing a path diagram, assessing model identification, evaluating estimates and model fit, interpreting and analysing the model, and the final model (Stevens, 2002; Norirs, 2005; Kenny, 2006; Garson, 2009; Byrane, 2010; Kline, 2011; Brown, 2011; Zainuldeen, 2012). The relationships between indicators or observed variables and latent variables are indicated by arrows. The path model depicts directional relationships among variables. A straight-arrow is used to specify a recursive relationship.

To decide if the model will be accepted or rejected, at least 3 to 4 tests are recommended. Goodness of fit was evaluated using chi-square for the null hypothesis significance test (Haire et al., 1995; Holmes-Smith, 2006; Zainuldin, 2012). Chi-square (x2) is an absolute fit index. A nonsignificant chi-square showed the parameters that were estimated for the model fit the data.

For this study, the comparative fit index (CFI) and standardized root mean was used. The CFI had a cut-off value of equal to or greater than 0.90 for an acceptable fit and equal to or greater than 0.95 for a good fit (Hu and Bentler, 1999; Byrane, 2010; Zainuldin, 2012) less than .05 was used to show a good model. The root mean square error of approximation (RMSEA) is less than .05 for a good fit or less than .08 for an acceptable fit (Kline, 2011 and Norris, 2005).

For adequate theory testing, the model needed to be over identified. To achieve this, three or more indicators were used for each of the latent variables (Garson and Norris, 2005). SEM includes CFA, which was used to test the measurement model as previously showed. Parameter estimates were used to show how well the indicators corresponded to the latent variables (factors). Parameter estimates used for this include variance and covariance of the indicators and factor loadings and

residuals. Indicators should have coefficients (factor loadings) of 0.6 or higher on the latent factors (Awang, 2012).

Materials and Methods

This research was designed as a quantitative research. This study collected data using developed questionnaires to measure the relationship between the beliefs of teaching and practices among the lecturers. The total respondents of this study was 106, however, only 103 who were valid and responded to the study. The convenience sample of 103 lecturers were recruited for this study from Community Colleges (CC), Yemen. SEM and multi procedures were used to analyze the model fit and investigating the relationship of the LBTF and LTP. SEM used to produce empirical evidence of the good fit of the recommended model to measure the LBTF and LTP in order to answer the research questions "Is there a significant relationship between LBTF and LTP?"

Two developed instruments were used and tested to measure the LBTF and LTP in order to answer the research question. The developed LBTF questionnaire contained 8 constructs namely Classroom Management (CM), Pedagogical Content Knowledge (PCK), Planning and Presentations (PP), Teaching Strategies (TS), Communication and Relation with Students (CRS), Assessing Students Learning (ASL), Prior Knowledge and Experience (PKE) and Enhancing Professional Practices (EPP) including 67 items. The developed LTP contained five constructs namely Integrating New Knowledge (INK), Performing the Real-World Problem (PRWP), Learner's Prior Knowledge (LPK), Practicing Solving Problem (PSP) and Real World relevant Problem (RWP) including 30 items. The instrument validity and reliability of LBTF and LTP was tested using Rasch Model analysis. The RM is one of a group of models originating from item response theory and was initially developed in connection with the construction of ability tests (Baker, 2001, Bond and Fox, 2001; O'Hrien, 1989). Important aspects of RM would be considered including item polarity, dimensionality, infit and misfit, item and person reliability, item and person separation, rating scale, item and person map. Understanding these concepts related to the RM analysis could help the interpretations of Rasch Model analysis results of LBTF and LTP.

Results

Validity and Reliability of LBTF and LTP Instruments

Measuring the lecturers' beliefs requires a measurable instrument to be developed and tested in order to clarify how beliefs reform Lecturers' Teaching Functions and Teaching Practices. Thus, psychometric properties were tested for both LBTF and LTP questionnaires to determine if these two instruments are sufficiently valid and reliable as measurement tools. Thus, RM analysis was used to test the validity and reliability of LBTF and LTP questionnaires. In RM Analysis, item

polarity or point measure correlation (PTMEA Corr.) was the early detection of construct validity. For the analysis of these constructs items, it appears MNSSQ infit analysis value should be 0.5 <x <1.5, and PTMEA value should be positive and + 0.2 <x<1(Linacare, 2005). Also, other criteria to be considered to determine the misfit item is the standardized fit statistic (Zstd) value with acceptable range value -2<ZSTD<+2 (Bond and Fox, 2007). Although, the construct items had positive correlation, 5 items including TS.23, PP.52, TS.21, PP.57, ASL.41, PP.67, and TS.15 were omitted due to their MNSQ value of infit and outfit was greater than 1.5 as shown in Table 1.

Table 1: Item polarity and fit analysis of LBTF

Measure	Model S.E	Infit		Outfit		Pt-Measure		ExactOBS%		Items
		MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	Match	EXP%	
-.83	18	**1.33**	**2.0**	**1.65**	**3.3**	**.32**	**61**	**57.6**	**63.0**	**EPP.67**
1.14	.13	**1.80**	**4.5**	**2.14**	**5.8**	**.42**	**.64**	**42**	**.50.7**	**EPP.52**
-.80	18	1.00	.1	1.16	1.0	.47	.6	55.3	.62.8	EPP.64
-.68	.17	.95	-.2	1.25	1.5	.47	.61	57.3	61.8	EPP.63
-1.44	20	1.00	.1	1.21	1.0	.49	.58	62.1	70.5	EPP.61
-1.06	.19	1.03	.3	1.07	.4	.50	.60	67.0	65.5	EPP.68
1.45	**.12**	**1.19**	**1.3**	**2.16**	**5.9**	**.50**	**.63**	**42.7**	**47.8**	**TS.23**
-.96	.18	.87	-.8	1.38	2.0	.50	.60	64.1	64.2	EPP.62
1.48	.12	1.24	1.6	1.50	2.9	.50	.63	36.9	47.8	TS.15
-.74	18	.87	-.8	1.05	.4	.50	.61	60.2	62.1	EPP.66
.58	**14**	**1.81**	**4.3**	**1.79**	**4.3**	**.51**	**.64**	**46.6**	**54.5**	**EPP.57**
-.90	.18	.86	-.9	1.01	.1	.54	.60	70.9	63.6	EPP.65
.42	.14	1.67	3.6	1.60	3.4	.54	.64	2.4	56.0	ASL.41
.93	.13	1.22	1.4	1.30	1.9	.55	.64	48.5	2.1	EPP.53
1.45	**.12**	**1.18**	**1.3**	**1.99**	**5.2**	**.55**	**.63**	**40.8**	**47.8**	**TS.21**
-.93	.18	1.46	2.7	1.48	2.5	.57	.60	60.2	64.1	PP.58
.50	.14	.96	-.2	1.00	.0	.57	.64	61.2	55.5	CM.3
.42	.1	.90	-.6	.94	-.3	.57	.64	64.1	56.0	TS.26
.93	.13	1.13	.9	1.21	1.4	.58	.64	54.4	52.1	PP.8
36	.15	1.12	.8	1.12	.8	.58	.64	60.2	56.1	PP.13

.77 .14	1.23 1.5	1.29 1.8	.59 .64	42.7 53.1	EPP.49
-.26 16	1.48 2.8	1.35 2.1	.59 .63	60.2 58.9	PCK.7
1.65 .12	1.05 .4	1.34 2.1	.61 .63	42.7 46.7	TS.28
-.13 16	1.08 .6	1.15 1.0	.61 .63	64.1 57.8	TS.24
.25 .15	1.20 1.3	1.17 1.1	.61 .64	47.6 56.2	PCK.6
.74 14	.92 -.5	.94 -.4	.61 .64	53.4 53.1	TS.16
.64 14	1.06 .4	1.10 .7	62 .64	48.5 53.4	TS.25
-.34 .16	1.16 1.1	1.30 1.8	.62 .63	67.0 59.4	PP.11
-.31 16	1.06 .4	1.04 .3	.62 .63	59.2 59.1	ASL.43
1.02 .13	.78 -1.5	.95 -.3	.62 .64	60.2 51.4	TS.14
-.28 16	1.41 2.4	1.38 2.2	64 .63	56.3 58.9	PCK.5
-.20 16	1.33 2.0	1.25 1.6	.64 .63	61.2 58.4	ASL.44
-.74 .18	1.05 .4	1.12 .7	.64 .61	64.1 62.1	EPP.54
.18 .15	.86 -.9	.92 -.5	.64 .64	56.3 56.0	TS.27
-.59 17	1.02 .2	1.00 .1	.65 .62	55.3 60.9	PCK.4
.14 15	|1.01 .1	1.03 .3	.66 .64	63.1 56.2	ASL.36
-.50 .17	.78 -1.5	.91 -.5	.66 .62	60.2 60.5	CM.2
.23 .15	.85 -.9	.87 -.8	.66 .64	63.1 56.1	PP.10
-.56 17	.92 -.5	.93 -.4	.66 .62	57.3 60.7	CM.1
-.68 .17	.85 -1.0	.93 -.4	.67 .61	69.9 61.8	EPP.60
.42 .14	.95 -.3	.94 -.4	.67 .64	55.3 56.0	TS.22
-.53 .17	.86 -.9	.84 -1.0	.67 .62	60.2 60.6	ASL.42
.02 .15	1.20 1.3	1.14 .9	.67 .63	56.3 56.3	EPP.55
.33 .15	.78 - 1.4	.84 -1.1	.68 .64	61.2 56.1	PP.9
.42 14	.76 -1.6	.73 -1.9	.68 .64	64.1 56.0	CRS.32
-.68 17	1.10 .7	.98 .0	.68 .61	66.0 61.8	EPP.56
-.10 .16	.66 -2.5	.70 -2.1	.68 .63	66.0 57.6	PP.12
-1.36 .20	.94 -.3	.81 -.9	.69 .58	72.8 69.5	EPP.59
-.26 .16	.99 .0	.90 -.6	.69 .63	59.2 58.9	EPP.51

-.59 .17	.66 -2.4	.69 -2.1	.70 .62	68.9 60.9	CRS.30
-1.70 .22	1.20 1.1	.76 -1.0	.70 .56	82.5 75.3	TS.29
.56 .14	.73 -1.9	.74 -1.8	.71 .64	58.3 54.8	TS.18
-.10 .16	59 -3.1	.60 -3.0	.71 .63	65.0 57.6	TS.20
-.68 .17	.82 -1.2	.75 -1.6	.71 .61	68.9 61.8	ASL.37
.20 .15	.68 -2.2	.70 -2.1	.71 .64	68.0 56.1	TS.19
-.03 .16	.66 -2.4	.66 -2.5	.72 .63|	65.0 56.7	TS.17
.14 .15	.83 -1.1	.75 -1.8	.72 .64	65.0 56.2	ASL.45
.07 .15	.70 -2.1	.71 -2.1	.72 .63	65.0 56.1	CRS.31
-.13 .16	.95 -.3	.91 -.6	.72 .63	62.1 57.8	PKE.48
.60 .14	.65 -2.6	.69 -2.2	.74 .64	62.1 54.0	ASL.39
.44 .14	.82 -1.2	.81 -1.3	.75 .64	62.1 56.0	ASL.34
.33 .15	.68 -2.3	.69 -2.3	.75 .64	61.2 56.1	EPP.50
.07 .15	.59 -3.0	.59 -3.1	.75 . 63	68.0 56.1	ASL.40
-.01 .16	.62 -2.8	.62 -2.8	.75 .63	64.1 56.7	PKE.46
.36 . 15	.55 - 3.4	.54 -3.6	.76 .64	72.8 56.1	ASL.35
-.05 .16	.66 -2.4	.64 -2.7	.76 .63	72.8 57.3	ASL.38
-.10 .16	.64 -2.6	.61 -2.9	.78 .63	66.0 57.6	PKE.47
.02 .15	.64 -2.6	.60 -3.0	.79 .63	68.9 56.3	CRS.33

Table 2 showed a good item correlation and item fit for LTP questionnaires. These findings indicated very good items signifying that all the items were appropriate for both further statistical analysis and inferences

Table 2: Item polarity and fit analysis of LTP

Measure Model S.E	Infit		Outfit		Pt-Measure		Exact OBS%		Items
	MNSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	Match	EXP%	
.33 .17	1.73 4.1		2.13 5.4		.51 .65		47.0 62.1		RWP.1
.00 .18	1.68 3.8		1.92 4.4		.49 .64		61.0 64.0		RWP.2
.30 .17	1.66 3.8		1.71 3.7		.47 .65		55.0 62.2		INK.28
-.10 .18	1.30 1.9		1.31 1.7		.59 .63		64.0 64.5		PSP.23

.45 .17	1.27 1.7	1.21 1.3	.54 .66	61.0 61.9	LPK.11
.84 .16	1.18 1.3	1.25 1.6	.56 .68	57.0 59.5	PRWP.14
1.12 .16	1.12 .8	1.18 1.2	.60 . 69	57.0 57.6	PRWP.13
-.68 .19	1.06 .4	1.11 .6	.59 .59	68.0 67.4	RWP.3
.18 .17	1.09 .6	1.03 .3	.64 .65	60.0 62.7	RWP.4
-.07 .18	1.06 .4	1.08 .5	.67 .63	77.0 64.3	PRWP.19
-.40 .19	1.06 .4	.92 -.4	.64 .61	69.0 66.0	INT.30
.00 .18	1.01 .1	|1.00 .1	.62 .64	64.0 64.0	LPK.7
-.13 .18	1.01 .1	.97 -.1	.68 .63	71.0 64.4	PSP.20
.-.43 .19	.95 -.3	.98 .0	.63 .61	68.0 66.2	PSP.25
.27 .17	.95 -.3	.91 -.5	.60 .65	69.0 62.2	RWP.5
.45 .17	.94 -.4	.88 -.7	.61 .66	72.0 61.9	PRWP.18
-.13 .18	.91 -.6	.83 -1.0	.70 .63	70.0 64.4	PSP.21
.30 .17	.87 -.9	.90 -.6	.69 .65	67.0 62.2	PSP.22
-.23 .18	.90 -.6	.81 -1.0	.63 . 62	67.0 64.9	LPK.8
.12 .18	.90 -.6	.87 -.8	.65 .64	73.0 63.2	LPK.12
-.68 .19	.84 -1.1	.74 -1.3	.65 .59	70.0 67.4	INK.29
-.68 .19	.84 -1.1	.71 -1.5	.69 .59	75.0 67.4	INK.27
-.07 .18	.83 -1.1	.77 -1.4	.68 .63	75.0 64.3	PRWP.17
-.30 .18	.81 -1.3	.77 -1.3	.69 .62	67.0 65.1	LPK.9
-.16 .18	.80 -1.4	.76 -1.5	..70 .63	70.0 64.5	LPK.6
.81 .16	.68 -2.5	.80 -1.4	.74 .68	65.0 59.6	DPRWP.1 5
.-.47 .19	.76 -1.7	.68 -1.8	.69 .61	78.0 66.5	PSP.26
-.33 .18	.70 -2.1	.63 -2.3	.75 .62	73.0 65.8	PSP.24
.09 .18	.65 -2.6	.66 -2.3	.73 .64	74.0 63.4	LPK.10
-.40 .19	.61 -3.0	.55 -2.8	.76 .61	82.0 66.0	PRWP.16

After deleting the misfi items of the LBTF instrument, the findings of RM analysis showed that all items of LBTF and LTP showed positive value greater than .20. These results indicated that all items moved in parallel functions to measure the constructs formed. as very good items signifying

that all the items are appropriate for both further statistical analysis and inferences. These findings indicated very good items signifying that all the items were appropriate for both further statistical analysis and inferences.

The dimension of LBTF and LTP constructs were tested using dimensionality analysis of RM. The dimensionality aspect is important for determining that the instrument is measured in one dimension and one direction (Linacre, 2003; Bond and Fox, 2007). In RM analysis, a satisfactory dimensionality determined by raw variance explained by measures should be more than 40% and unexplained variance in 1st contrast which should be ≤ 15. Table 3 showed raw variance explained by measures was 50.0%.0%, and unexplained variance in 1st contrast was 4.6%%. Thus, dimensionality data results demonstrate that the LBTF data fit the RM.

Table 3: Dimensionality analysis results of LBTF

	Empirical			Modeled
Total raw variance I observations	135.2	100.0%		100.0%
Raw variance explained by measures	67.9	50 .0%		49.6%
Raw variance explained by persons	39.6	29. 1%		28.9%
Raw Variance explained by items	28.3	20. 8%		20.7%
Raw unexplained variance (total)	68.0	50.0%	100.0%	50.4%
Unexplained variance in 1st contrast	6.2	4.6%	9.1%	
Unexplained variance in 2nd contrast	4.3	3.2%	6.4%	
Unexplained variance in 3rd contrast	4.2	3.1%	5.0%	
Unexplained variance in 4th contrast	3.4	2.5%	5.0%	
Unexplained variance in 5th contrast	2.8%	2.1%	4.1%	

The dimensionality analysis results of LTP tested using RM as shown in Table 4. The raw variance explained by measures value was 44.6%.0%, and unexplained variance in 1st contrast value was 6.7%%. Thus, dimensionality data results show that the LTP data fit the RM.

Table 4: Dimensionality analysis results of LTP

	Empirical			Modeled
Total raw variance in observations	4.1	100.0%		100.0%
Rawvariance explained by measures	24.1	44.6%		45.2%
Raw variance explained by persons	4.7	27.1%		27.5%
Raw Variance explained by items	9.4	17.5%		17.7%
Raw unexplained variance (total)	30.0	55.4%	100.0%	54.8%
Unexplained variance in 1st contrast	3.6	6.7%	12.0%	
Unexplained variance in 2nd contrast	3.0	5.5%	10.0%	
Unexplained variance in 3rd contrast	2.3	4.2%	7.6%	
Unexplained variance in 4th contrast	2.1	3.9%	7.0%	
Unexplained variance in 5th contrast	1.7	3.1%	5.7%	

However, the reliability analysis was tested and conducted with 67 items for LBTF instrument among 103 lecturers of Community College in Yemen. The criteria for accepting reliability in RM is exceeding 0.50 (Linacre, 2007; Bond and Fox, 2007). In addition, acceptable separation should be more than 2 (Fisher, 2007). Rasch reliability of the items was comparable with Cronbach's alpha (CA). CA is a measure of internal consistency and estimates the reliability of the scale by computing the variance between all possible pairs of items. Data analysis of reliability using RM showed in Table 5 and 6. The person reliability was very high at a value of 0.96, and the person separation was 5.00, and item reliability as 0.95 and item separation as 4.20 which were acceptable. Analysis of the study showed the reliability of 103 respondents with 67 items in these constructs was high to measure the LBTF. Thus, the reliability of item and person for LBTF instrument values were fairly close together and both representing a strong acceptable level.

Table 5: Person reliability and separation index for LBTF

	Raw Score	Count	Measure	Infit		Outfit	
				IMSQ	ZSTD	Omsq	ZSTS
Mean	281.3	68.0	1.85	1.02	-.2	1.04	-.2
S.D	37.8	0.0	1.13	0.51	2.6	0.76	2.6
Real RMSE	0.22						
ADJ. SD	1.11						
Separation	5.00						
Person liability	0.96						
Total person input	103						

Table 6: Items reliability and separation index for LBTF

	Raw Score	Count	Measure	Infit		Outfit	
				IMSQ	ZSTD	OMSQ	ZSTS
Mean	426.1	103.0	0.00	0.98	-0.2	1.04	0.1
S.D	31.2	0.0	0.71	0.28	1.8	0.36	2.1
Real RMSE	0.16						
ADJ. SD	1.11						
Separation	4.20						
Item reliability	0.95						

Similarly, the RM analysis used to measure the reliability of LTP was tested using RM analysis as illustrated in Table 7and 8. The analysis of reliability showed that the person reliability value was high with 0.91, and the person separation was 3.27. the item reliability value was 0.83 and item separation value was 2.22. Therefore, the results of person and item reliability and person and item separation for LTP indicated satisfactory readability. Analysis of the study showed the reliability of 103 respondents with 30 items in these constructs was high to measure the LTP. Thus, the

reliability of item and person for LTP instrument values were fairly close together with both representing a strong acceptable level.

Table 7: Person separation and reliability analysis of LTP

	Raw Score	Count	Measure	Infit		Outfit	
				IMSQ	ZSTD	OMSQ ZSTS	
Mean	126.9	30	1.93	1.03	-0.2	1.00	-0.3
S.D	15.0	0.0	1.74	0.72	2.5	0.36	2.5
Real RMSE	0.51						
ADJ. SD	1.67						
Separation	3.27						
Person reliability	0.91						

Table 8: Items Separation and reliability analysis of LTP

	Raw Score	Count	Measure	Infit		Outfit	
				IMSQ	ZSTD	OMSQ	ZSTS
Mean	435.6	103.0	0.00	1.99	-0.1	1.00	-0.1
S.D	14.9	0.0	0.46	0.28	1.8	0.36	1.9
Real RMSE	0.19						
ADJ. SD	0.46						
Separation	2.22						
Item reliability	0.83						

SEM Analysis for the relationship of LBTF and LTP

Because of the need of explaining a fit model, analysing the initial model was made by calculating estimates of the model. The initial model, as explained in Figure 2, is based on the unidimensionality, validity, and reliability analysis. The unidimensionality was achieved when measuring items having acceptable factor loading equal or higher than the value of 0.5 for respective latent construct (Awang, 2012). As shown in Figure 2, construct items had good satisfactory factor loadings hence representing unidimensionality. The validity of the measurement model analysed the convergent validity, construct validity, and discriminative validity. According to Awang (2012), the convergent validity could be verified through AVE (Average Variance Extracted) and the AVE should be greater or equal to 0.5. The AVE were calculated for the measurement model by calculating the sum of variance of constructs and then dividing it by the number of constructs of the Lecturers' Beliefs on Teaching Functions (LBTF) and Lecturers' Teaching Practices (LTP). The AVE of LBTF constructs was 0.73, and the AVE of LTP was 0.65. The results of AVE indicated that all items in the measurement model were statistically significant. The discriminative validity of the measurement model was achieved when the measurement model was free from redundant items, or when the correlation between each pair of latent exogenous

construct is less than 0.85 (Awang, 2012). Figure 1 showed the good discriminative validity of the initial measurement model.

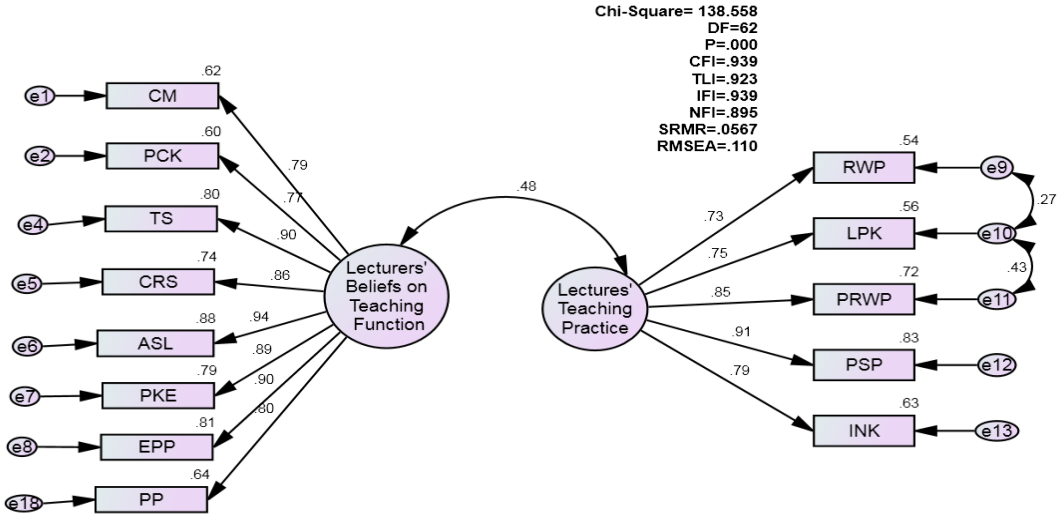

Figure 2: The initial structural model

Table 9 explained the goodness of fit indexes used to evaluate the initial measurement model. As shown in Table 1, the Chi-square was significant, value of CFI was value was 0.93, value of TLI was 0.92, IFI Value was 0.93, NFI value was 0.89, SEMR value was 0.56, RMSEA value was 0.11 and Chi-square/df value was 2.23. The values of Chi-square, CFI, TLI, NFI and Chi-square/df showed acceptable goodness fit of measurement. However, the goodness fit indexes of NFI was 0.89, SRMR was 0.56 and the RMSE was 0.11 which showed low goodness fit. Therefore, the initial measurement model needed modification. There is a series of goodness of fit indices that reflect the fitness of the model. It was recommended to use at least three fit indexes by including at least one index from each category of model fit (Norris, 2005; Garson, 2009; Awang, 2012)

Table 9: The index category and level of acceptance for every index

Name of category	Name of index	Level of acceptance	Index Level results
Absolute fit	Chisq	P > 0.05	Significant
	RMSE	RMSE < 0.08	0.11
Incremental fit	CFI	CFI > 0.90	0.93
	TLI	TLI > 0.90	0.92
	NFI	NFI > 0.90	0.89
Parsimonious fit	Chis/df	Chis/df < 5.0	2.23

Modification indices were used to improve model fitness (Garson, 2009). However, modification needed to be consistent with the theory used to propose the model. Figure 3 and Table 10 depicted a new measurement model. In the modification model, the goodness fit indices of proposed measurement model were improved and showed good fit as showed in Figure 3 and Table 2. However, CVA was used to answer the research question "Is there a significant relationship between LBTF and LTP?" As shown in Table 11, the estimate (correlation) value between lecturers'' teaching and practices was 0.48, and the probability of getting a critical ratio as large as 3.69 in absolute value was less than 0.001. In other words, the correlation between LBTF and LTP was significantly different from zero at the 0.001 level (two-tailed) and it was greater than 0.25.

Table 10: Summary of improved index category of modified model

Name of category	Name of index	Index in initial model	Indexes in proposed model
Absolute fit	Chisq	Significant	Significant
	RMSE	0.11*	0.076*
Incremental fit	CFI	0.93	0.97
	TLI	0.92	0.96
	NFI	0.89*	0.93*
Parsimonious fit	Chisq/df	Chisq/df 1 = 2.23 < 5.0	Chisq/df = 1.58 < 5.0

Table 11: The estimate results of LBTF and LTP

			Estimate	S.E.	C.R.	P	Label
LBTF	<-->	LTP	1.017	0.48	3.694	***	

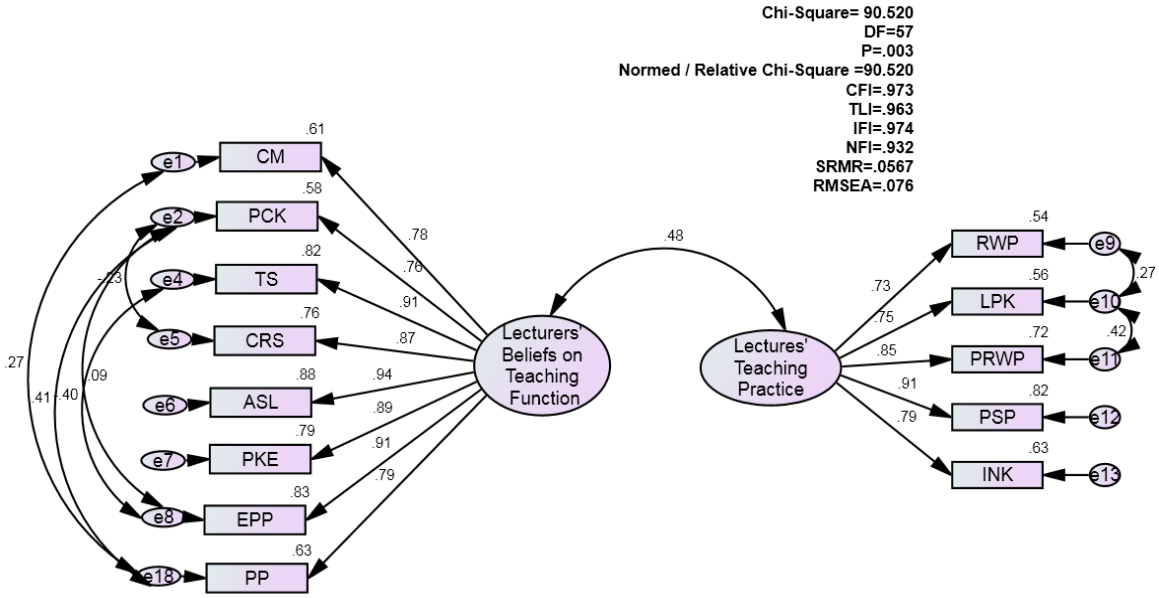

Figure 3: The modified model

Discussion

An understanding of the relationship between Lecturers' Beliefs on Teaching Functions (LBTF) and Lecturers' Teaching Practices (LTP) is important for the improvement of lecturers' professional development. Hence, the findings of the modified model showed the goodness fit indices of proposed measurement model was improved and showed good goodness of fit. This result showed the good fit of proposed model. In addition, the results of AVE of the CVA measurement model showed that all items in the CVA measurement model were statistically significant. The research question was answered by CVA. The findings showed that there was a good and significant correlation between lecturers' beliefs on teaching and practices. This result implied that such changes in lecturers' beliefs on teaching functions will lead to specific changes in their classroom behaviours and practices. The lecturers' beliefs on teaching are platforms which guide their teaching activities and practices. Thus, lecturers with high belief on teacher functions have higher teaching practices than those with low belief on teaching functions.

Understanding the beliefs of lecturers is critical in education as we 'cannot effect change in lecturers' behaviors without also effecting change in their personal beliefs' (Kagan, 1992). Findings of this study showed that beliefs may affect the lecturers' practices and their for better

professional development as explanation of how Lecturer beliefs and ideas that influence how they conceptualize teaching. Pajares (1992) states that beliefs function as a filter through which new phenomena are interpreted. Lecturers make decisions about classroom instruction in the light that theoretical beliefs have on teaching and learning (Harste and Burke, 1977). Thus, lecturers' beliefs affect their objectives, procedures, materials, interaction patterns of the classroom, their teaching functions, their students and the institutions where they work. However, Schommer (1994) suggests that epistemological beliefs evolve with experience, reflecting experiences of both education and home-life and that there is scope for change.

Professional competence is believed to be a crucial factor in classroom and educational institution practices (Shulman, 1987; Campbell et al., 2004; Campbell and Norton, 2007; OECD, 2009; Guskey, 2012). The findings of this study indicated that lecturers with high belief on teacher functions have higher teaching practices than those with low belief on teaching functions. As a result of that, professional development of lecturers can be enhanced when their teaching practices are high as a result of high belief on teaching functions. Because the need of lecturers to improve their professionalism through changing some beliefs which may affect their teaching practices that lead to improving their professionalism. Thus, professional development of lecturers could be through training programs designed to improve their performance in the light of competencies and building on this proposal can prepare competency-based training for the development of some of the teaching skills of faculty members according to the self-learning model. Savasci-Acikalin (2009) reached a similar result that lecturers' beliefs are consistent with classroom practices. The findings of Mansour (2008) study suggested that lecturers' personal religious beliefs and experiences played a significant role in shaping beliefs and practices. Al-Jadidi (2012) concluded in her study of Professional Preparation, Knowledge and Beliefs of Kindergarten Lecturers in Saudi Arabia that the activities the children are involved in are related to their culture and families and are in keeping with their experience of Islam and their religious beliefs. In addition, Watson (2012) in his research concluded that beliefs are related to pedagogical practices. Therefore, it can be concluded that beliefs and experience shape lecturers' teaching which influence their teaching practices that reflect lecturers' professionalism. Alwadi and Saravanan (2014) in their research found that although teachers showed earlier resistance to change their epistemological beliefs and professional practices, they became keener to improve their practices and adopt suggestions by the end of their program. Naashia- Mohamed (2006) concluded in her study that there was an interconnection between teachers' beliefs, their instructional practices and professional development.

In summary, the previous studies found that lecturers' beliefs are mostly consistent with their practices. (Savasci-andAcikalin, 2009; Thompson, 1992; Yero, 2002). The research findings of SEM conclude that the influence of these different sets of variables lecturers' beliefs on teaching functions as an independent variable and on lecturers' teaching practices as dependent variable was tested. Thus, the effective evaluating of lecturer' beliefs and understandings of teaching as

well as learning play an important role in their classroom practices and in their professional growth and improvement of the effectiveness of teaching in colleges and universities (Naashia- Mohamed, 2006; Kuzborska, 2011; Strong 2003; Hiadar, 2009; Al-Jadidi, 2012; Mofreh, 2018).

Implications

This study is unique in combining a tight focus on Lecturers' Beliefs on Teaching Functions (LBTF) and Lecturers' Teaching Practices (LTP) involvement of lecturers at community colleges using mixed methods. This study provides important insights for lecturers, community colleges, higher educational institutions, policy makers in higher education and students regardless of the relationship between LBTF and LTP. More importantly, a study of LBTF and LTP can create a picture of how the findings and recommendations of current research and policy filter through into real classroom practices, showing how lecturers view 'practices' policy through the lens of their belief on teaching functions. Currently, there is no instrument measuring the Lecturers' Beliefs on Teaching Functions (LBTF) and Lecturers' Teaching Practices (LTP). This research developed the LBTF and LTP as its first contribution.

This study will help the lecturers to understand how their ideas and perceptions about their roles and responsibilities can improve their professionalism and practices in teaching. Lecturers' understanding about their importance of their beliefs gives them the opportunity in decision-making and improvement of students' achievements. Kennedy (1997) asserts that these beliefs are used to evaluate the new ideas about teaching that lecturers confront in their classes. Those teachings that square with their beliefs are recognized and characterized as "what's new?" Using the developed LBTF questionnaire, the lecturers can measure their Beliefs on Teaching Functions. Using the developed LTP questionnaire, the lecturers can measure their Teaching practices. Understanding the relationship between Lecturers' Beliefs on Teaching Functions (LBTF) and Lecturers' Teaching Practices (LTP) provides lecturers with possible examples of how their beliefs influence their classroom practices.

The administrative community colleges can use the developed LBTF instrument to measure the lecturers' beliefs on teaching functions and LTP instrument is used to measure teaching practices among lecturers' at community colleges. The administrative in community colleges can assess the lecturers' professional development individually based on their beliefs on teaching functions and its influence on their teaching practices.

Those teachings that square with their beliefs are recognized and characterized as "what is new?" Thus, the relationship between beliefs and practices among lecturers should be considered among scholars. Also, it is useful to provide lecturers with possible examples of how to apply promoted ideas and resolve conflicts among a variety of beliefs, organizational supports and constraints, and

related practices. In addition, it helps lecturers to adapt to educational reform, the process of reflecting on and discussing beliefs is "an important aspect of lecturers' professional development," enabling lecturers to take "greater control over their own professional growth" (Calderhead 1996; (OECD, 2009; Guskey, 2010; Shagrir, 2013, Mofreh, 2018). Such reflection may even be a route to improving classroom practice, as Salinas et al. (2002) argued: "enhancing lecturers' consciousness of their beliefs about classroom practice should contribute to improving effectiveness".

However, this research with its contribution gives the key to community colleges on how to accomplish its goals by developing the CC lecturers' practices. Therefore, this CC can appraise lecturers' teaching practices by using self-assessment based on the lecturers' perceptions and beliefs about their teaching functions which influence lecturers' in their understanding of their roles as lecturers because of building their new knowledge and experiences. In addition, the CC lecturers with their beliefs of teaching functions will develop their teaching practices. This new vision of the importance of the role of lecturers' beliefs on teaching functions and its influence on teaching practices gives CC administrations and lecturers the light of impertinence role that lecturers can play in improving the effectiveness of teaching. Like any educational institution, the effectiveness and success of a CC depends on effective lecturers and their roles in education that are the most important resources, which influence the CC outcomes. Thus, community colleges could use both LBTF and LTP instruments in appraising lecturers as a supportive and developmental process designed to ensure that all lecturers have the skills and support they need to carry out their role effectively. It will help to ensure that lecturers are able to continue to improve their professional practice and to develop as lecturers.

Other higher institutes in Yemen like universities and college may rethink lecturers as an important source in raising their effectiveness by understanding the beliefs and perceptions about their teaching and how these beliefs influence their teaching practices, student s' achievements and college outcomes.

For policy-makers, the research explores the relationship between the demands made in the LBTF and LTP model and framework, showing alignments and points of tension. It offers insights into how a decade of the framework has shaped lecturers' beliefs and practice as factor indicators of their professional development.

Recommendations

Research in the future could consider other factors which may affect the relationship between LBTF and LTP. These factors may include the role of culture, religion, work overload, time restraints, and problems with student behaviour, working conditions, relationships with colleagues,

lack of resources, and the physical demands of teaching. A full SEM for further future research is essential to expand the theory guiding this phenomenon. Finally, future research can use a larger sample employing accurate statistical findings on using SEM to further investigate the effects among variables. This study is to test the model of LBTF and LTP as future research.

Conclusion

An understanding of the relationship between lecturers' beliefs on teaching and practices is important for the improvement of lecturers' professional development. In this study, the measurement model, therefore, provides an integrated model of teaching functions and practices. Findings of the modified model showed the goodness fit indices of proposed measurement model was improved and showed good goodness of fit. The proposed hierarchical model is made up two levels with lecturers' beliefs on teaching construct variables being the first level while the teaching practices constructs make up the second level. Therefore, this model provides a conceptual background for future analysis of beliefs on teaching functions and practices in community colleges. The relationship between lecturers' beliefs on teaching functions and teaching practices was tested using SEM.

The proposed measurement model could be implied to predict a model for the relationship between lecturers' beliefs on teaching and practices and the effects of the lecturers' beliefs on teaching on practices. This result implied that such changes in lecturers' beliefs on teaching functions will lead to specific changes in their classroom behaviours and practices. The lecturers' beliefs on teaching functions could be used as platforms which guide their teaching activities and practices. Therefore, the developed LBTF and LTP instruments could be used as measurable instruments to measure their beliefs and predict their improvement in practices as an indicator of their professional development.

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STUDY HABITS OF PRE-SERVICE TEACHERS: BASIS FOR THE DEVELOPMENT OF ACADEMIC ENHANCEMENT PROGRAM

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ABSTRACT

This study intended to quantify the five domains of study habits of pre-service teachers and their perceptions on the necessity of a possible remedial program, which is alternatively named as Academic Enhancement Program (AEP) for this specific research. This quantification procedure applied descriptive and inferential statistical tools to determine the significance of differences among the study habits of the respondents who were classified according to year level and area of specialization. The results revealed that university students in the same year level are more likely to have similar degree of study habits (p>.05, U=7.00, p=.251, SD=.15297) than when compared to their areas of specialization (p<.05, K=10.820, p=.004). Thus, the researcher recommends a specialization-wide program that will not follow a universal approach, but instead will focus on the identified strengths and weaknesses of pre-service teachers under a specific specialization.

Keywords: academic achievement, remediation, domains, non-parametric, teacher education

Introduction

Over the last decades, a plethora of evidence-based institutional researches were conducted to justify the definition and link of study habits as a non-cognitive predictor to school success. Sharma and Vyas (2017) described study habits as "student ways of carrying out the task of studying by using various techniques and ways in the field of study to afloat self" (p. 377). Given this meaning that suggests limitless parameter, it is incontestable that study habits could be considered a factor in the attainment of maximum potentials of university students throughout their stay in a higher education institution (HEI). Sherafat and Murthy supported this by reiterating that "the link between study habits and academic achievement has strong association and this variable is one of the most important topics in educational world" (2016, p. 162). Possibly, this owes to the improvement of knowledge acquisition of students gearing towards greater grades (Shahzadi & Ahmad, 2011). For localization, Mendezabal (2013) has quoted Crede and Kuncel in a Philippine-based research, articulating that study habits is one of the attitudinal or non-cognitive constructs that could be held more reliable for the increase of educational outcomes of any learners. This is in comparison to the recognized cognitive determinants for better academic performance in the past such as higher grades, test competence, and standardized results.

Nevertheless, no matter how much empirical explorations were done to substantiate the connection of study habits to school success, it is still not seen as a strong basis for the development of a comprehensive remedial education. Munene, Peter, and Njoka (2017) mentioned that most remediation programs are concentrated on the enrichment of subjects that were underachieved by students due to a variety of reasons that involve learning and behavioral problems, poor living status, and inaccessibility to quality education among others. Like so, Luoch (2016) asserted that there are other remediation programs that appear to be unclear onto what it actually intends to achieve, since it only focuses on learners "who have failed to make the threshold in the placement tests or the approved instruments that enable them to get into regular university courses" (p. 2288).

Pondering the result gaps provided by these scholars, the present researcher initiated this study with an effort to utilize study habits as a variable in constructing a remedial education for pre-service teachers to thrive in their education. Undoubtedly, it could be proven that study habits and its probable influences to the students can somehow go beyond their stay in the university for four to five years, as the effects remain and are extended throughout their career years: crafting lesson objectives, creating instructional materials, and arranging schedules to balance work and other social responsibilities. These statements agreed to the descriptive correlation analysis of Siahi and Maiyo (2015), saying that "the development of good study habits is equally relative and helpful not only in academic work but in career actualization" (p. 135).

These scrutinized literatures even implied that study habits, as a variable, depend on the indicated context of inquiry. In this recent research, study habits are operationally explained as a set of practices or routines that university students, mainly pre-service teachers, execute in a regular mode to learn from and comply with classroom activities. The general objective was to quantify the five domains of study habits of pre-service teachers in De La Salle University-Dasmariñas and their perceptions on the necessity of a remedial education. This quantification procedure further determined the significance of differences among the study habits of the respondents who were classified according to year level and area of specialization. More so, the results aimed to help administrators and faculty in formulating a possible remedial education that could pave the way to the educational advancement of the undergraduates. This remediation is alternatively named as Academic Enhancement Program (AEP), which is operationally defined as a scholastic means of targeting concerns of pre-service teachers in the College of Education who are challenged in sustaining excellent study habits and in acquiring better academic standing.

Conceptual Framework of the Study

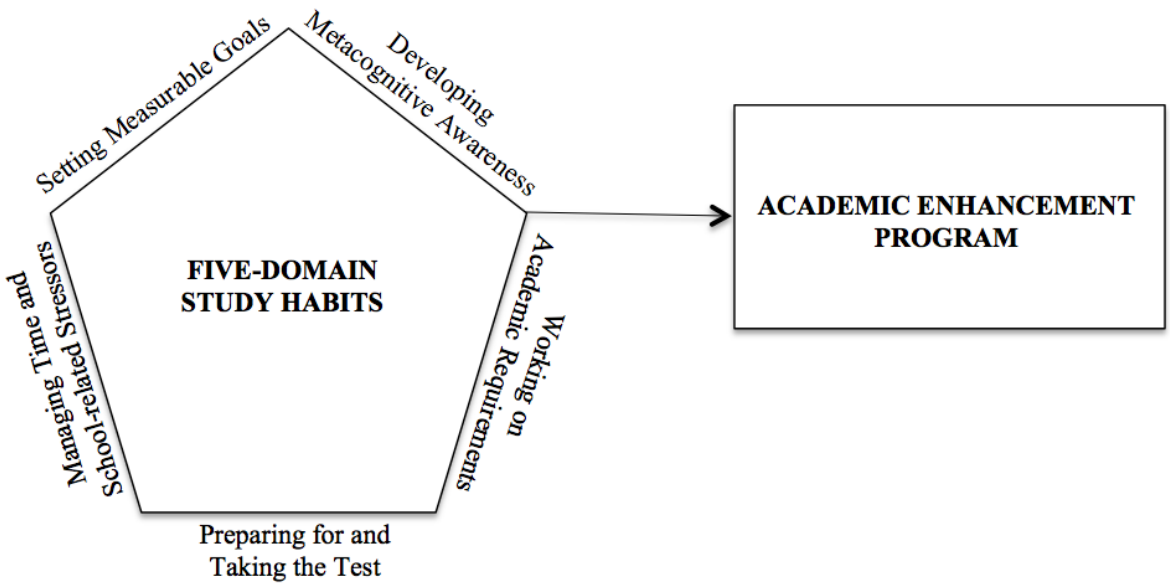

Figure 1. Developing Academic Enhancement Program for HEI Based on Study Habits

Study habits could be appraised in a variety of methods using different research instruments and data gathering procedures. Citing is the work of Amri, Aridah, and ParamIswari (2020) where study habits were calculated through a Study Habits Inventory, a questionnaire devised by Palsane and Sharma in 2003 following a three-point Likert scale with 45 items. The authors used descriptive statistics and Pearson product correlation in treating the scores obtained from this

instrument. Another correlation study computed the level of study habits manifested among learners. This utilized the Study Skill Inventory, a separate tool created by Congos with 49 items and six subscales consisting of test preparation, concentration, time management, textbook usage, note taking, and memory (Khurshid, Tanveer, & Qazmi, 2012). Otherwise, the action research written by Rutherford (2020) assessed the academic habits of students using a self-made survey. This instrument focused merely on the time management skills and the number of hours spent by the respondents in studying, reading, and practicing mathematics with or without a tutor. The study of Cerna and Pavliushchenko (2015) employed both qualitative and quantitative procedures to evaluate study habits, whereas one-year classroom observations and informal interviews with professors and high performing students were conducted to develop the Self-Reported Study Habits for International Students (SR-SHI). This inventory tool was distributed to its respondents to clearly recognize the struggling learners in their respective classes.

The cited literatures above proved that study habits were measured and could be measured with varying modes, depending on the elements that an institution or a researcher intends to emphasize for a greater purpose. For this particular study, Figure 1 displays how the five domains of study habits were used as the springboard in the development of probable AEP of HEIs for pre-service teachers. The five key constructs stipulated in this research model is a contextualized framework based on the elements of study habits from Bradford University, which were adapted by Lucas and Corpuz (2014). These elements of study habits served as a solid underpinning to a research that investigated the correlation of study habits to the academic performance of the students. The descriptive-correlational study of Quinco-Cadosales (2013) anchored the assessment of study skills of first year students to the elements of study habits published by Lucas and Corpuz. This led to the composition of comprehensive analyses and recommendations on how academic performance of freshmen students could be improved for enhanced school experience. Initially, it followed six major subthemes that included: (1) motivation, (2) organizing and planning your work, (3) working with others, (4) managing schoolwork stress, (5) note-taking and reading, and (6) and preparing an assignment/project. These subthemes with predetermined study habit indicators, equivalent scoring, and specified feedback for the interpretation of scores were deliberated in this present research, but still underwent contextualization and expert validation procedures considering the target respondents, the locale of the study, and the general objective of this research. These procedures combined similar constructs and separated contradicting items for better analysis, instigating the identification of the five domains presented in Figure 1. These domains pertain to (1) setting measurable goals, (2) developing metacognitive awareness, (3) working on academic requirements, (4) preparing for and taking the test, and (5) managing time and school-related stressors. These were formulated to help the respondents easily ascertain their strengths and weaknesses by evaluating the extent of their study habits.

Identified as the first domain of study habits for this research, goal-setting is seen as a substantial aspect of active schooling. Regarded as a plotting map for success, goals that are formed painstakingly can guide students to divert their focus on the right priorities and to avoid getting off track (Fleming, 2019). As also published in an analysis related to goal-setting learning principles, "goals play an important role to motivate students to become more energetic, to develop suitable learning style, and then put their persistent efforts in order to achieve specific learning outcome and performance" (Abu Bakar, Li, Ng, & Tan, 2014, p. 45). Secondly, metacognitive awareness deals with the knowledge of individuals about their own thoughts and the strategies they use to cope from learning concepts. In the assessment directed by Abdellah (2015), relationships of metacognitive awareness to the academic achievement and teaching performance of female pre-service teachers were appraised methodically. The results affirmed that indeed, metacognition could influence learning, as positive correlation was revealed at the end of the study. This shows that it is important for aspiring teachers to exhibit mindfulness on his or her personal journey towards knowledge acquisition. In connection to working on academic requirements, the degree of compliance and even diligence of students in submitting assignments, outputs, and projects must be taken into account. The local study of Quinco-Cadosales (2013) agreed that complying with countless academic requirements is one of the keys to survive in college, especially for students who are newly enrolled in an institution. Likewise, the findings implied that preparing assignments or projects and organizing works could matter in the ongoing growth of learners in tertiary level. The test-taking skills particularly of pre-service educators should also be monitored as an integral part of study habits, since short tests or major examinations comprise a huge percentage both in the computation of general grade point average and actual licensure examination for teachers. Evaluating study techniques before an examination or reflecting on the items during the test itself is actually attributed to enhancing learning abilities (Simpson, 2015). Thus, it can be concluded that with superior skills in preparing for and taking the test comes greater chances for academic success. Lastly, with the hectic schedules and rigorous trainings that a student undertakes towards the road to professionalism, effective time and stress management are extremely needed. Coping mechanisms must be planned out with all the responsibilities and demands that a pre-service teacher has to juggle. In a mixed method design of research that was written by Nasrullah and Khan (2015), it was stated that there is a significant relationship between the time management skills and the school accomplishment of university students. The results lead to a conclusion that well-performing students mostly exhibit good time management techniques. On the other hand, students are prone to different stressors like pressure and other external elements that usually hamper their ongoing development (Devi & Mohan, 2015). With this, it is essential that they are equipped as well with the best set of mechanisms and coping strategies that can alleviate the difficulties of being in a competitive university.

The domains elaborated prior are believed to be contributory to the holistic development of students in school, which are manifested similarly in the case of pre-service teachers in De La

Salle University-Dasmariñas. Their adept learning and efficient studying are more likely to be achieved if the aforementioned points are performed excellently—from formulating short and long-term objectives, understanding own cognitive processes, accomplishing tasks, reviewing or answering an examination to handling time and all possible taxing situations. These attainment descriptors of scholastic grinding resulted to the identification of scope for possible remediation, as the researcher began to gauge the study habits of pre-service teachers. This remediation or AEP, as operationally used in this research, could be developed in the future for the commitment to intensify the educational outcomes of these approaching professionals.

Historically, the pre-service teachers in De La Salle University-Dasmariñas received wide-ranging forms of remediation through both faculty and student-led initiatives. Consultations hours were given and are still being offered by professors to present the computation of grades, clarify questions about the subject requirements, and to assist academically challenged students. These are even listed as part of the teaching obligations in the contract and faculty manual of teachers in the university. Since 2014, seminars discussing topics under general education, professional education, and major subjects are prearranged for graduating education-major students. There were also institution and college-wide remedial activities that were created by some student organizations to help fellow tertiary students who are experiencing difficulty in their courses. In the College of Education where the study was undertaken, two of the most notable remediation programs were made for pre-service teachers in the past: the Academe Org Tutorial that started year 2015 and EduKampijo in 2018. Both programs were introduced by student groups and reinforced by faculty members and administrators. However, success indicators were not totally achieved chiefly due to lack of data-driven support and preparation. This stirred the interest of the researcher to commence with this scholastic work that is centered on study habits in proposing a remediation program or AEP that is based fully on needs and data analysis.

Research Questions

This study aimed to quantify the study habits of pre-service teachers in De La Salle University-Dasmariñas and their perceptions on the necessity of a possible Academic Enhancement Program (AEP). Specifically, it sought to answer the following questions:

1. What is the extent of study habits of pre-service teachers in terms of:
    a. setting measurable goals,
    b. developing metacognitive awareness,
    c. working on academic requirements,
    d. preparing for and taking the test, and
    e. managing time and school-related stressors?;
2. Is there a significant difference between the study habits of the respondents when grouped according to year level?;

3. Are there significant differences among the study habits of the respondents when grouped according to area of specialization?; and lastly,
4. Did the quantified results of study habits effect a significant change towards the perceptions of the respondents on the necessity of AEP to improve the performance of pre-service teachers in the university?

Hypotheses of the Study

These hypotheses were put into test for the purpose of developing a program: there are no significant differences among the study habits of the respondents when grouped according to area of specialization and year level. Furthermore, no significant change is revealed with regard to the perceptions of pre-service teachers on the necessity of AEP to ensure school success.

Methodology

The researcher employed a quantitative design of research to generate relevant findings and to produce statistically analyzed interpretations of all the results that were disclosed hereafter. The respondents of this study were 66 pre-service teachers or university students taking teacher education who were equally derived from three different areas of specialization, namely special needs education (SNE), early childhood education (ECE), and physical education (PE), with 22 respondents each. These pre-service teachers were from two different year levels: 33 freshmen and 33 sophomores during the first semester of Academic Year 2019-2020. Since the Philippines transitioned to K12 education system, no to minimal junior and senior education students are enrolled in the country. This resulted to limiting the respondents to the first two levels in the pre-service education.

In computing the sample size, the Slovin's formula was used to a total population of 87 pre-service teachers with a margin of error of .05. This stemmed to 71 education students taking degrees in the areas and levels previously cited. The researcher recruited the respondents for this study in compliance with their availability and regular class schedules arranged by the university. Due to unforeseen instances such as illness and off-campus activity, 66 pre-service teachers were surveyed. The respondents involved were all enrolled in the College of Education, De La Salle University-Dasmariñas, an HEI in the Philippines that offers teacher training and education programs to aspiring Filipino prime movers of education in the country. De La Salle University-Dasmariñas is known as the premier university in the province of Cavite. Awarded with certifications and recognitions from several award-giving organizations and accrediting bodies, its College of Education continues to promote quality tertiary education.

For the research instrument, the study utilized a researcher-made Five-Domain Study Habits Questionnaire. The researcher listed first the items based on gathered literatures that intend to measure the level of study habits in each domain. Upon completing the initial questionnaire, it underwent expert validation with the assistance of different specialists in the field of education, psychology, and even in language to holistically examine the correctness of each detail. This led to the revisions of the questionnaire prior its distribution. The questionnaire has a preliminary question and two divided parts. Part I contained 10 items per domain of study habits, which in total compiled 50 items of thoroughly devised statements related to learning practices and routines. Meanwhile, Part II probed the perception of pre-service teachers to the necessity of AEP in refining school achievement. The instrument gauged primarily the view of the respondents on the pertinence of AEP in addressing their challenges to maintain commendable study habits. This did not involve the assessment of efficiency neither the effectiveness of the program implementation itself.

With reference to the treatment of the data collected, these descriptive and inferential statistical tools were selected to obtain relevant findings pertinent to the development of the program: *Statistical mean and ranking* for question number one to three to locate in a scale the computed central tendency; *Median and range* to position all the domains in order provided its lowest and highest mean for questions two and three; *Mann-Whitney U Test* to distinguish the differences between two independent samples stipulated in number two, which pertain to the two year levels; *Kruskal-Wallis One-way ANOVA by Ranks* for number three to check the significance of differences among the three different independent samples, referring to the three areas of specialization, and ultimately, frequency, percentage, and the *McNemar Change Test* to ascertain the findings for question number four. The researcher engaged the before-and-after approach of *McNemar Change Test* only to confirm if there was a significant change towards the perceptions of the respondents on the necessity of AEP. Therefore, it is not the actual program implementation that was measured in this study. Instead, it quantified the insights of the respondents on the need of AEP in improving the performance of pre-service teachers after knowing the level of their study habits.

Results and Discussion

Upon thorough computation of all the data gathered, these findings were obtained for the purpose of developing a possible AEP. This will support the educational needs of pre-service teachers in De La Salle University-Dasmariñas who are specializing in early childhood education (ECE), special needs education (SNE), and physical education (PE). The results below underwent in-depth interpretation and analysis to upkeep with the statistical values presented in the tables. For the Likert scale used in this research, the range was equally divided to interpret the weighted mean computed in each domain.

Range	Verbal Interpretation
1.00 – 1.80	Never (N)
1.81 – 2.60	Seldom (Sm)
2.61 – 3.40	Sometimes (Ss)
3.41 – 4.20	Often (O)
4.21 – 5.00	Always (A)

Problem 1. What is the extent of study habits of pre-service teachers?

Table 1: Study Habits of First Year Pre-service Teachers in De La Salle University-Dasmariñas

Domains of Study Habits	First Year-ECE			First Year-SNE			First Year-PE		
	Mn	Rank	VI	Mn	Rank	VI	Mn	Rank	VI
a. Setting Measurable Goals	4.14	3.5	O	4.01	5	O	3.35	4	Ss
b. Developing Metacognitive Awareness	4.20	2	O	4.24	3	A	3.52	2	O
c. Working on Academic Requirements	4.35	1	A	4.35	1	A	3.72	1	O
d. Preparing for and Taking the Test	4.14	3.5	O	4.26	2	A	3.41	3	O
e. Managing Time and School-related Stressors	4.11	5	O	4.05	4	O	3.05	5	Ss
Total Mean	**4.19**	**1**	**O**	**4.18**	**2**	**O**	**3.41**	**3**	**O**

Note. Mn=Mean; VI=Verbal Interpretation

Table 1 exhibits the range of study habits of first year pre-service teachers who are specializing in three different majors. These study habits were divided into five domains, which accumulated varying mean scores. Nevertheless, the total mean indicates that respondents from first year-early childhood education earned the uppermost mean with 4.19 or often. It is followed by first year-special needs education pre-service teachers with 4.18 or often, and lastly, respondents from first year-physical education obtained the third rank with a mean score of 3.41 or often. It could further be seen that *Working on Academic Requirements* garnered the highest mean among the five domains of study habits, while the domains related to *Setting Measurable Goals* and *Managing Time and School-related Stressors* acquired the lowest.

These results should be considered, knowing that an achievable goal is an important factor for school success. Usher and Kober (2012) in their summary report mentioned that researches hinted that goals could motivate students to strive harder, particularly if the ones who set it embrace these goals. Likewise, students should equip themselves with excellent time management, as this also affects how stress are being handled during school tasks and personal achievements (Nasrullah & Khan, 2015). The low scores in these domains of study habits should be improved, since it could bring direct influence on the general motivation, studying skills, and academic performance of the respondents. Efficient abilities in identifying goals will merit positive outcomes in the end, while stable time and stress management potentials could result to a more relaxed working space for pre-service teachers.

Table 2*: Study Habits of Second Year Pre-service Teachers in De La Salle University-Dasmariñas*

Domains of Study Habits	Second Year-ECE			Second Year-SNE			Second Year-PE		
	Mn	Rank	VI	Mn	Rank	VI	Mn	Rank	VI
a. Setting Measurable Goals	3.95	5	O	3.57	5	O	3.71	1	O
b. Developing Metacognitive Awareness	4.06	4	O	3.84	2	O	3.67	2	O
c. Working on Academic Requirements	4.16	2	O	4.09	1	O	3.41	4	O
d. Preparing for and Taking the Test	4.08	3	O	3.60	4	O	3.06	5	Ss
e. Managing Time and School-related Stressors	4.22	1	A	3.78	3	O	3.53	3	O
Total Mean	**4.09**	**1**	**O**	**3.78**	**2**	**O**	**3.48**	**3**	**O**

Note. Mn=Mean; VI=Verbal Interpretation

Table 2 displays the study habits of second year pre-service teachers, which were also distributed into five different domains that are similar to the first table. The total means reveal that the respondents from early childhood education, special needs education, and physical education who are enrolled in second year attained the mean scores of 4.09, 3.78, and 3.48, respectively. These statistical values of three areas of specialization gained an equivalent verbal interpretation of often.

Comparing the numerical figures from Table 1 to table 2, the total means of study habits shared analogous ranking. However, Table 2 denotes more variety of positions in a scale of central tendency, as per the specific enlisted domains are concerned. The individual computed mean scores in each of the five domains did not depict parallel ranking for the topmost and the least domain of study habits. As the findings in Table 1 presents almost similar first and fifth ranks, the

responses in Table 2 goes to another direction when grouped according to their year levels and areas of specialization. This could be linked to gender and socio-economic status (Khan, 2016) or time management, teaching strategies of professors, and studying environment, (Yap, 2019). These factors, though not all included in the scope of this study, infer interesting discovery that other researchers could explore in the future.

Problem 2. Is there a significant difference between the study habits of the respondents when grouped according to year level?

Table 3: Study Habits of Pre-service Teachers When Grouped According to Year Level

Year Levels of Pre-service Teachers	*N*	Mn	VI	Minimum	Maximum	Md	R
a. First Year	5	3.93	O	3.73	4.14	3.94	.41
b. Second Year	5	3.78	O	3.58	3.89	3.84	.31
		3.85	**O**				

Note. N=Total number of domains for study habits; Mn=Mean; VI=Verbal Interpretation; Md=Median; R=range

Table 3 implies that the combined scores of all pre-service teachers from two year levels produced an overall mean of 3.85 or often. Between these levels, first year pre-service teachers achieved greater level of study habits with Mn=3.93 or often and Md=3.94, whereas, respondents in second year only had Mn=3.78 or often and Md=3.84. Though the mean and medians scores of two year levels are dissimilar, both still took a verbal interpretation of often.

Table 4: Test Statistics of Mean Scores and Year Levels Using Mann-Whitney U Test

	Mean Scores
Mann-Whitney U Test	7.000
Wilcoxon W Signed Ranks	22.000
Standard Deviation (*SD*)	.15297
Z	-1.149
p-value (2-tailed)	.251

For Table 4, the Mann-Whitney U Test specified that the p-value is greater than the .05 significance level (p>.05). Thus, the researcher retains the null hypothesis. There is no significant difference between the extents of study habits of pre-service teachers when grouped according to year levels (U=7.00, p=.251, SD=.15297).

In another study that employed an advanced inferential statistics, no correlation has also been found between the study habits and age of university students (Mashayekhi et al., 2014) or year level for this specific research. This means that students who are younger or older with different study habits do not automatically equate to a significant difference. Age or year level could be a contributing factor, but not enough to substantiate the claim that it is a marking force that can disturb the level of study habits among learners or the pre-service teachers for this matter.

Problem 3. Are there significant differences among the study habits of the respondents when grouped according to area of specialization?

Table 5: Study Habits When Grouped According to Area of Specialization

Areas of Specialization	*N*	Mn	VI	Minimum	Maximum	Md	R
a. Early Childhood Education	5	4.14	O	4.05	4.26	4.13	.21
b. Special Needs Education	5	3.98	O	3.79	4.22	3.93	.43
c. Physical Education	5	3.44	O	3.24	3.60	3.53	.36
		3.85	**O**				

Note. N=Total number of domains for study habits; VI=Verbal Interpretation

Table 5 suggests that among the three areas of specialization from both year levels, the pre-service teachers in early childhood education ranked first with Mn=4.14 or often and Md=4.13; next are from the area of special needs education with Mn=3.98 or often and Md=3.93; and finally, respondents taking physical education as a major got the lowest with Mn=3.44 or often and Md=3.53.

Table 6: Test Statistics of Mean Scores and Areas of Specialization Using Kruskal-Wallis Test

	Mean Scores
Kruskal-Wallis H	10.820
Degrees of freedom (*df*)	2
p-value	.004

In connection to the test statistics presented in Table 6, the non-parametric Kruskal-Wallis H Test disclosed that the p-value is lesser than the .05 significance level (p<.05). Therefore, the researcher rejects the null hypothesis. There are significant differences among the mean scores of study habits of pre-service teachers when grouped according to areas of specialization (K=10.820, p=.004).

The numerical figures further explain that the concept of studying as a consistent routine certainly varies from one student to another, and even more, from one area of specialization to another. This analysis affirms the conclusion drawn by Hassan, Sadaf, Aly, and Baig (2018), stating that study habits must be reflected as personal traits and not only a set of academic practices, since no students are alike as per the level of this variable is concerned. The fact that the respondents are taking different areas of specialization, there is definite dissimilarities on their study habits or in their approaches with regard to their goals, metacognition, school requirements, examinations, time, and stress. This is not to disregard their other individual differences that could contribute additional impact on the results above.

Table 7: Multiple Comparison Procedures of Study Habits vis-à-vis Areas of Specialization

Areas of Specialization	Test Statistics	Standard Test Statistics	Sig.	Adjusted Sig.	Interpretation
a. ECE and SNE	3.400	1.202	.229	.688	Not significant
b. SNE and PE	5.800	2.051	.040	.121	Not Significant
c. PE and ECE	9.200	3.253	.001	.003	Significant

Note. Sig.=Significance level

Taking into account the results in Table 6, multiple comparison procedures were conducted to trace which areas of specialization gotten a significant difference. Table 7 was able to identify that the mean scores of pre-services teachers in the areas physical education and early childhood education are significantly different with a value of .003, while the remaining comparisons are not significant (ECE-SNE=.688, SNE-PE=.121). The evident incongruence of PE and ECE as two separate but intersecting fields is a remarkable result. This is in reflection to the circumstance that most Filipino pre and in-service ECE teachers are required to teach PE subjects, while pre and in-service PE teachers can handle ECE learners given their preference.

Problem 4. Did the quantified results of study habits effect a significant change towards the perceptions of the respondents on the necessity of AEP to improve the performance of pre-service teachers in the university?

Table 8: Perceptions of Pre-service Teachers on the Necessity of AEP

Year Levels and Areas of Specialization	Before				After			
	Yes	%	No	%	Yes	%	No	%
a. First Year-ECE	3	27%	8	73%	11	100%	0	0%
b. First Year-SNE	8	73%	3	27%	11	100%	0	0%
c. First Year-PE	10	91%	1	9%	10	91%	1	9%
d. Second year-ECE	4	36%	7	64%	9	82%	2	18%
e. Second year-SNE	6	55%	5	45%	9	82%	2	18%
f. Second year-PE	10	91%	1	9%	11	100%	0	0%
Total	**41**	**62%**	**25**	**38%**	**61**	**92%**	**5**	**8%**

Table 8 entails the perceptions of the respondents before and after the study habits were quantified. Prior the results, 62% of the total sample perceived the relevance of the program. On the other hand, 25 students or 38% did not grasp the need for its development and implementation. After the mean scores for study habits were calculated, an increase of 30% transpired to the general percentage of pre-service teachers who agree on the necessity of AEP to intensify the school achievement of pre-service teachers in the university, which gathered 92% of the total sample.

Table 9: Change of Perceptions on the Necessity of AEP

Before	After	
	No	Yes
Yes	3	38
No	2	23

The fourfold table of frequencies in Table 9 signifies the two sets of responses from the same group of sample. Since the non-parametric test utilized to treat the data merely focused on the

numbers in which changes occurred, it could be understood that there were 23 respondents who originally did not agree on the necessity of the AEP, but following the computation of their study habits, these pre-service teachers shifted to its possible development. Contrastingly, there were three respondents who preferred at first the program, but eventually expressed disagreement following the quantified mean scores of their study habits.

Table 10: Test Statistics of Before and After Perceptions of the Respondents

	Before and After
N	66
Chi-square	13.885
p-value	.000194

The findings in Table 10 detail the test statistics for McNemar Change Test, where it was noted that the null hypothesis is rejected, given that the p-value is lesser than the .05 significance level ($p<.05$). This connotes that there is significant change on the perceptions of pre-service teachers in terms of the necessity of AEP before and after their study habits were quantified ($X^2=13.885$, $p=.000194$).

The results realized upon treating the data concur on the findings of a Kenya-based research. Although this study published by Munene et al. (2017) was done in public primary schools, the respondents who were composed of teachers, administrators, and students still upheld remedial teaching like the AEP as an effective mode to enhance the learning capacity of students in school ($M=4.52$, $SD=.0975$). Undeniably, AEP is seen as a powerful tool to allow students in achieving their maximum potentials and in fostering valuable learning. The advantages it is set to offer will train the respondents in their remaining semesters and years in the university. Henceforth, this could be more beneficial to the tertiary students who will eventually teach and handle classes in the near future.

Conclusions

The areas of specialization and year levels critically played as essential variables in producing quality results and analysis for this study, as this cohesively grouped the respondents for the needed treatments. More to that, the recommendation of enhancement program that the researcher suggested was based on the degree of significant difference corroborated from these two variables. The identified topmost and lowermost domain of study habits differed from the majority of the

respondents. Nevertheless, the ranking of the three areas of specialization drew evident similarities for both year levels. First on the rank are the pre-service teachers from early childhood education, second are from special needs education area, and lastly, university students majoring in physical education. As far as the quantified study habits of the respondents according to year level, no significant difference was determined. Herewith, students in the same year level mostly share an equal extent of study routines and practices. When study habits were measured according to areas of specialization, significant differences were identified among their mean scores, specifically the statistical values between physical education and early childhood education pre-service teachers. This shows that even students in the same year level are more likely to have similar degree of study habits, it is opposite when juxtaposed with other areas. Ultimately, the level of study habits effect a meaningful change towards the insights of the respondents on the Academic Enhancement Program. With the majority of the samples approving its concept, it is hoped that this will improve the school success of pre-service teachers and better sustain the teaching-learning process in the university.

Implication of the Study

Upon reviewing the concluded findings of this present research, the results imply that remedial programs or academic enhancement programs should not be based alone on grades or subjects where students obtained a failing grade. It should not also follow a one-size fits all model where all students who are struggling academically must be placed in a program with similar approaches, notwithstanding their year level or area of specialization. Since most educational institutions will just do reteaching of lessons in a large group scale, it could neglect the actual problem of the learners. Hence, teachers must be keen instead in creating a remedial program that is holistically responsive in a more reduced and appropriate grouping. Placing students in a program with lesser number of participants will allow them to focus more and the teacher to prioritize the problematic domain of study habits at the same time. Taking this implication to the actual results of this study, it is disclosed that teacher education students from De La Salle University-Dasmariñas is more likely to benefit in a smaller group classified according to their area of specialization.

Recommendations

In relation to the aforesaid conclusions and implications, recommendations were formed to maximize sensibly the findings produced by this study. Mainly, the university administrators and faculty can consider the definite items for improvement to address the deficient domain of study habits of pre-service teachers. The domains focusing on goal-setting and time-stress management should be the core of a remediation program that needs to be prepared. Students should be equipped on the imperatives of writing specific and measurable goals related to their studies. These goals should be guided with identified success indicators and dated timeline to monitor student progress

and accomplishment. Additionally, student wellness seminars can be conducted to highlight the benefits of maintaining a healthy lifestyle such as having enough sleep, rest, and hydration in increasing attention and alleviating stress.

The remediation or Academic Enhancement Program that will be implemented throughout the school year could be proposed with the positive support of the respondents on its potential development and is recommended to follow a specialization-wide approach and not just simply universal or even year-level system technique. This is to ensure focus on the identified strengths and weaknesses per area of specialization. As the results revealed that there were more significant differences on the study habits of the respondents when grouped according to area of specialization than to year level, it is believed that specialization-wide enhancement program will promote a more individualized remediation. For future researchers, evidence-based studies problematizing associated themes could be continuously conducted for the purpose of advancing the quality of instruction being provided in every teacher education institution. Subthemes highlighting the needs of pre-service teachers and the factors influencing their holistic growth such as student engagement, field exposures, and professional trainings could also be considered.

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FACTORS AFFECTING STARTING WAGES OF MASTER'S DEGREE-GRADUATES IN TAIWAN

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ABSTRACT

The reputation of a university is reflected in the graduate's employment rate, salary, and position of its graduates in the job market. To improve the efficiency of the allocation of resources, the Ministry of Education in Taiwan, in cooperation with the Ministry of Labour and Finance, had set up a job tracking mechanism for university graduates from the academic year of 2012 to 2016. The present study examined 416 records of postgraduates' employment wages in the case university in comparison with the average monthly salary among 157 universities. Correlation, ANOVA, and regression analysis were carried out. The results demonstrate that the academic system significantly influenced the wages, and the level of stable wages showed a positive relationship with job satisfaction and learning-job-congruence. Personal social networking was a significant predictor of the stable wage level. Besides, students with science, engineering, and technology background, and those worked in public sector earned higher wages than others.

Keywords: Employment wages, Post-graduate, Job satisfaction, Learning- job-congruence

Introduction

Differences in the quality of a university's educational performance are likely to be reflected in the graduates' salaries, employment rates, and position of university graduates in the labor market. Past research has examined the quality of teaching, research, and service by teachers (Abbott and Doucouliagos 2003; Casu and Thanassouils 2006; Cherchye and Abeele 2005; Johnes 2006; Kao and Hung 2008). Research has also considered the importance of students' starting wages after they graduate and enter the job market (Ehrenberg 2002; Kong and Fu 2012; Lu and Fu 2015). The Ministry of Education (M.O.E.) in Taiwan keeps data on the link between employment flow and wage level in cooperation with the Ministry of Labour and the Ministry of Finance. The average salary one year after graduation can be evaluated for each university. The average salary of the same academic type (day or night) throughout Taiwan can also be compared with the data of each university. A positive difference shows the reputation of the university in comparison with the national average. Past research has demonstrated that a higher reputation of a university leads to higher initial wages to students graduating from the university (Kong and Jiang 2013).

Several factors may affect the employment wages of graduates after they complete university's studies. These may include whether they work in the public or private sector. In a separate study, it was found that both the public and private sectors preferred male graduates from old and well-established universities (Berggren 2011). In addition, many researchers have discussed the positive relationship between job satisfaction and wages (Jung and Lee 2016; Kenny et al. 2016).

To improve the efficiency in the allocation of educational resources, the Ministry of Education (M.O.E.) in Taiwan, in cooperation with the Ministry of Labour and Finance, had set up a job tracking mechanism for university graduates from the academic year of 2012 to 2016. This data can be used to examine the employment flow, and salary level of graduates using big data, and the analysis can be used as a policy reference.

The analysis of starting salaries of students after graduation and career opportunities in different colleges, academic systems (day/night classes), and a number of years after graduation in the case university in Taiwan presents the institutional performance. Furthermore, the original data from the M.O.E. can be linked with the 'Graduate employment satisfaction questionnaire' survey carried out by the case university to generate additional insights.

The main purpose of this study is: (1) to analyse factors influencing the graduation wages in the case university; (2) to evaluate the correlation among 'Graduate employment satisfaction' 'Learning-job-congruence' and the difference in wages in comparison with the national average; (3) to predict the stable employment wages model. The research structure is shown in Figure 1. This research may be useful for universities and policymakers in improving students' career-related strategies.

Literature review

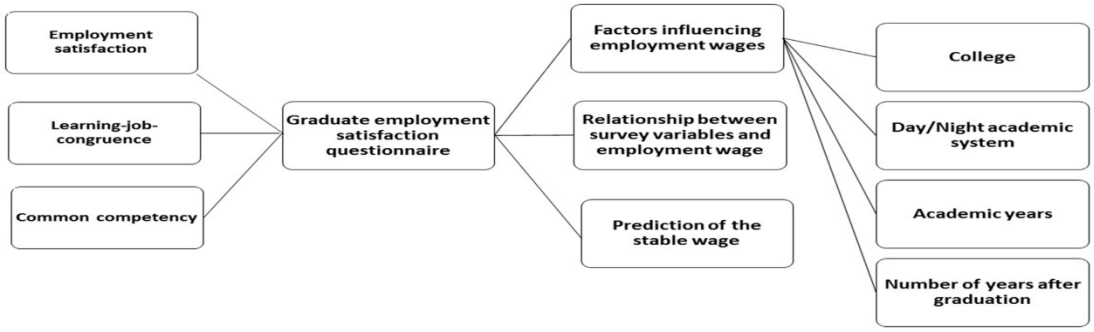

Figure 1: Research structure

Employment conditions in Taiwan

In 2019, the Ministry of Labour in Taiwan carried out a survey on students who graduated between the academic year of 2012 to 2016. The survey included data on graduates' full-time salaries, educational degrees, academic year, and day/night academic system. The survey results showed that the percentage of students with bachelor's degrees was the highest (79), followed by Masters (20), and Ph. D (1). Data on wages showed that the average wage for students with a bachelor's degree was the lowest (NT$28,950), followed by Masters (NT$ 47,173) and Ph. D (NT$67,527). Figure 2 compares the day/night academic system in which night classes represent part-time degree programs. It can be seen master's degree students who attended night classes received higher superior salaries compared to graduates in the day system. Students with bachelor's degrees are the main source of labor in industries in Taiwan. The number of graduates with Ph. D. degrees decreased gradually from 2012 to 2016. Different career clusters can also be discussed to explore the level of wages in Taiwan.

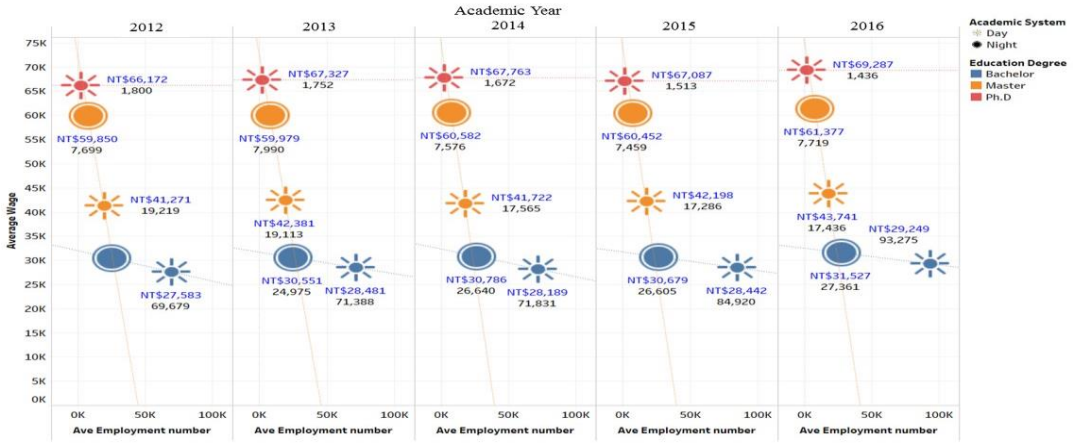

Figure 2: Full-time salary and employment numbers statistics

Employment of postgraduates and graduates

The number of graduates, employment rate, unemployment rate, and average monthly wages are the four main indicators to be discussed among master's degree programs to deal with employment problems of postgraduates in a given educational set-up (Xiao 2015). Because of the imbalance between talent supply and demand types, the weak demand for human resources with a master's degree decreased the average salary in the labor market. Despite a marginal drop in unemployment, the median starting salary for master's degree graduates has also declined (Morrissey 2013). In Korea, students' search for better education at university, and the prestige of the university continue to affect occupational wages (Jung and Lee 2016). In Japan, the average wage of postgraduates is approximately 30–40 percent higher than undergraduates (Morikawa 2015). Some researchers have reported that the postgraduate students with sufficient competencies could attract higher employment opportunities (Ali and Jalal 2018; Potanin 2019). In our study, the wages of students' graduated from the case university were compared with the average wages of all universities in Taiwan to analyse an overall employment scenario and the existence of any relative advantages.

Factors influencing employment wages

Nurpratiwi et al. (2020) stated that higher education had a positive and significant effect on the wages of workers. According to Carroll (2014), if a university has a high international ranking, it can have a positive effect on graduates' employment and wages. Therefore, more and more universities are paying attention to their institutional rankings (Kong and Jiang 2013). A higher ranking and good reputation can lead to higher student enrolment in an academic institution. Cooperation between industry and academia can also create a higher number of employment opportunities. Næss (2016) demonstrated competency in different job clusters by examining different levels of wages. It was noted that the increased number of graduates was absorbed by the knowledge-intensive economic activities such as "professional and technical services" and "information and communication" (Næss 2016). Therefore, common competencies were analysed in this study to predict the stability of employment wages. Job satisfaction plays an important role in employment wages (Krumbiegel et al. 2018; Liu 2019). It can be related to labour market mobility (Freeman 1978), job performance (Mount et al. 2006), and personal well-being (Rode 2004). Job mismatch is an important cause of job dissatisfaction, job inefficiency, and wage losses (Bárcena-Martín et al. 2012; Boudarbat and Chernoff 2012; Vaisey 2006; Verma and Zhang 2019). Hence, in our study, the factors of learning-job-congruence, and job satisfaction were analysed to determine its relationship with employee wages.

Methodology

Samples and procedure

The original employment data from the Ministry of Education (M.O.E.), Taiwan was in cooperation with the Ministry of Labour and Finance from 2012 to 2016. Alumni from all universities in Taiwan were considered in the study after eliminating those graduates who left for abroad, and also those who opted for further education or military service. Postgraduates' employment wages records of 416 students for the academic years of 2012-2016 in the case university and the average monthly salaries of graduate students' among 157 Taiwanese universities are available in the M.O.E. survey. Annual data is available for wage levels for a total of five, four, three, two, and one year(s) for 2012, 2013, 2014, 2015, and 2016 graduating class, respectively. The data pertained to the master's degree graduates in both the day and night system in five colleges (Management, Science and Engineering, Design, Humanities, and Social Sciences, and Informatics). In the first stage, we carried out basic statistical analyses and ANOVA.

In addition, in this study, we have used data from the 'Graduate employment satisfaction questionnaire' collected by the case university. The participants who graduated in the academic year of 2014 and 2015 completed the survey. After working for one year, they answered the questions online in the academic year of 2015-2016. In the second stage, we linked the employment wages with the 'Graduate Employment Satisfaction Questionnaire.' There are a total of 46 records in our analyses. Then, we carried out basic statistical analyses, correlation, and regression analysis.

Measures and variables

Students answered the survey using a five-point scale; the options were "strongly agree," "agree," "neutral," "disagree," and "strongly disagree." The scoring order was 5,4,3,2 and 1 point, respectively. The higher the score, the more satisfied the student was with the working situation and learning-job-congruence. Also, the case university collected data on common competencies, including professional and practical ability, information technology application capability, communication coordination and teamwork ability, and autonomous learning ability. We explored the correlation between graduates' employment satisfaction, learning-job-congruence, common competency, and the difference in employment wages during the academic year of 2015 and 2016. The difference in the average wages of graduates from the case university and wages of graduates from all-universities was called the "stable wage". When the stable wage was higher than zero, it means that graduates from the case university received higher wages than the graduates from other universities. The hypothesis is: The "stable wage" was positive among job satisfaction, learning-job-congruence, and common competency.

To predict the stable employment wages model, we applied a regression analysis. The independent variables were college, day/night academic system, academic years, graduation years, the number of paid graduates, the number of graduates working in the same company, employment rate, the scores of graduate employment satisfaction, learning-job-congruence, and common competency. The dependent variable was the difference between the case university and the average of all 157 Taiwanese universities' students' employment wages. Because college and academic system were categorical variables, they should be coded into dummy variables. College were coded as Management: (0,0,0); Science and Engineering: (0,1,0); Design: (1,0,0); Humanities and Social Sciences: (0,0,1); Informatics: (0,1,1). Academic systems were coded as night: 1, day: 0.

There are different types of job clusters in the labor market shown in Table 1 (States' Career Clusters Initiative, 2005). In our study, the outperforming wages for a college or department will be discussed concerning jobs in different industries.

Table 1: Career industries

Career cluster	*Definition*
Agriculture, food, and natural resources	**T**he production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.
Architecture and construction	**C**areers in designing, planning, managing, building, and maintaining the built environment.
Arts, A/V technology, and communications	**D**esigning, producing, exhibiting, performing, writing, and publishing multimedia content, including visual and performing arts and design, journalism, and entertainment services.
Business, management, and administration	**B**usiness management and administration careers are encompassing planning, organizing, directing and evaluating business competencies essential to efficient and productive business operations. Business management and administration career opportunities are available in every sector of the economy.
Education and training	**P**lanning, managing, and providing education and training services and related learning support services.
Finance	**P**lanning, services for financial and investment planning, banking, insurance, and business financial management.
Government and public administration	**E**xecuting governmental competencies to include Governance; National security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels.
Health science	**P**lanning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
Hospitality and tourism	**H**ospitality and tourism are encompassing the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel-related services.
Human services	**P**reparing individuals for employment in career pathways that relate to families and human needs.
Information technology	**B**uilding linkages in I.T. occupations framework: for entry-level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.
Law, public safety, and security	**P**lanning, managing, and providing legal, public safety, protective services, and homeland security, including professional and technical support services.

Career cluster	*Definition*
Manufacturing	**P**lanning, managing, and processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.
Marketing, sales, and service	**P**lanning, managing, and performing marketing activities to reach organizational objectives.
Science, technology, engineering, and mathematics	**P**lanning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services.
Transportation, distribution, and logistics	**P**lanning, management, and movement of people, materials, and goods by road, pipelines, air, rail and water, and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

Results

Employment wage database

Basic statistics

The basic statistics of master's degree graduates for the case university, including academic year, day/night academic system, college, and a number of years after graduation are presented in Table 2. If the number of graduates was lower than 3 for any year, the data was deleted to secure the personal information.

Table 2: Frequency table of wages in 2012-2016

Items		N
Academic year	2012	139
	2013	115
	2014	81
	2015	54
	2016	27
Academic system	Day	248
	Night	168
College	Humanities and Social Sciences	59
	Science and Engineering	118
	Design	34
	Informatics	71
	Management	134
Number of years after graduation	1	132
	2	113
	3	85
	4	57
	5	29

Table 3: Average monthly wages received by graduates for the case university from 2012 to 2016 (Unit: NT$*)

	Academic Year				
Number of years after graduation	**20 12**	**201 3**	**201 4**	**201 5**	**201 6**
1	49,096	47,211	46,321	47,795	44,545
2	48,895	50,291	48,062	51,459	
3	52,827	53,512	49,718		
4	53,715	54,397			
5	55,996				

***** NT$=New Taiwan dollar (1 US$ = 30NT$)

Table 3 shows that the average monthly starting wages decreased gradually from 2012 to 2016. The results showed that the graduates' average monthly salary increased from the third year after graduation.

ANOVA

ANOVA can determine whether there is a significant factor in explaining each facet of variance. The independent variables are an academic year, day/night academic system, college, and a number of years after graduation. There are three dependent variables in our analysis. First, the average monthly wage of master's degree graduates from the case university. Second, the average monthly wages of graduates from all the universities in Taiwan. Third, the difference in graduates' wages between the case university and graduates from 157 universities in Taiwan.

Before the ANOVA, the normality test was conducted by Kolmogorov-Smirnov's method because the number of postgraduates was over 50 (N=416). The number between Day and Night in the academic system was not significantly different in the analysis ($p>.05$). So the data was fitted the normal distribution. From Table 4, it can be seen that the day/night academic system variable was a significant factor. The average wage of the student in the night system was significantly higher than graduates of the day system. This finding holds true for the case university and all universities in Taiwan. The difference between the wages of graduates from the case university and the national average (NT$6,796) was lower for the night system than for the day system (NT$14,527). The average monthly salary of the graduates of the night system is more than NT$72,796 for the case university.

Table 4: ANOVA of the academic system and wage (Unit: NT$)

Academic system		Case university average wage (I)	All universities average wage (J)	Difference (I-J)
Day	Mean	35,140	49,667	-14,527
	N	248	248	248
	Standard error	7,937	8,707	9,113
Night	Mean	72,796	79,592	-6,796
	N	168	168	168
	Standard error	16,018	9,941	14,890

Items		Sum of squares	d.f.	Mean sum of squares	F	Sig.
Case average wage(I)	Between groups	142,015,057,800	1	142,015,057,800	1,006.614	.000
	Within groups	58,407,920,760	414	141,081,934		
	Total	200,422,978,500	415			
Total universities	Between groups	89,685,980,050	1	89,685,980,050	1,053.919	.000
Average wage(J)	Within groups		414	85,097,620		
	Total		415			
Difference(I-J)		5,986,531,082	1	5,986,531,082	43.075	.000
		57,537,891,580	414	138,980,414		
		63,524,422,660	415			

***** NT$=New Taiwan dollar (1 US$ = 30 NT$)

Employment satisfaction questionnaire database

We linked the data of the 'Graduate employment satisfaction questionnaire' and the M.O.E. data for the years of 2015 and 2016. The analysis shows that the day/night academic system factor was significantly different (p value=.001) from other factors. The difference between the average monthly salary of graduates from the night system in the College of Science and Engineering between the case university and all 157 Taiwanese universities was positive, as shown in Table 5. This subject area has a strong focus in the case university.

Table 5: Frequency of graduate employment satisfaction questionnaire completion in 2015-2016

Coding			Item	N
Academic system		0	Day	25
		1	Night	21
College		1	Humanities and Social Sciences	4
		2	Science and Engineering	15
		3	Design	3
		4	Informatics	8
		5	Management	16

Dependent variable: Difference of wages

Academic System	College	Mean	SD	N
Day	Humanities and Social Sciences	-3,222	6,090	2
	Science and Engineering	-20,761	7,340	8
	Design	-13,972	9,663	2
	Informatics	-23,857	10,852	5
	Management	-20,360	7,254	8
	Total	-19,305	9,244	25
Night	Humanities and Social Sciences	-15,986	15,741	2
	Science and Engineering	**545**	15,047	7
	Design	-10,170	.	1
	Informatics	-3,660	8,665	3
	Management	-12,189	14,297	8
	Total	-6,991	14,153	21

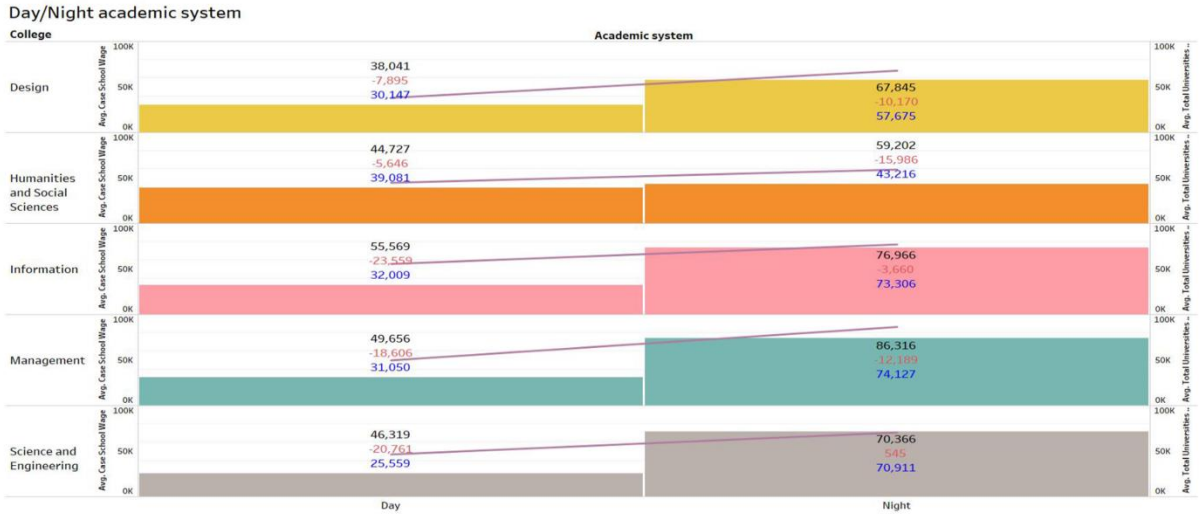

Figure 3: Comparison of wages in 2015 and 2016

In Figure 3, the red text shows the difference in the graduates' average monthly salary between the case university and the average of all universities. The black text is the average monthly salary of all universities, and the blue text is the average monthly salary of the case university. The figure shows that the ranking of the colleges concerning monthly salary for the day system in all universities is: College of Informatics> College of Management> College of Science and Engineering> College of Humanities and Social Sciences > College of Design. For the night system, the ranking in terms of average monthly salary for all universities is College of

Management> College of Informatics> College of Science and Engineering> College of Design >College of Humanities and Social Sciences. The graduates in the night system had the highest average salary for both the case university and average of all universities. The Informatics College graduates from the day system exhibited the highest starting salaries for the all universities sample, but the College of Humanities and Social Sciences had the highest starting salaries in the day system at the case university. The starting average salary was only higher than the all-university average for the graduates of the College of Science and Engineering in the night system of the case university (Difference = 545).

Correlation

Table 6: Pearson correlation

	1	2	3	4	5	6	7	8	9	10	11	12
1. Number of paid graduates	1											
2. Case university graduate average monthly salary	.478**	1										
3. Employment rate	.206	.528**	1									
4. Number of graduates working the same company	.290	.819**	.517**	1								
5. All universities monthly salary	.472**	.830**	.434**	.742**	1							
6. Stable wage	.241	.703**	.377**	.497**	.187	1						
7. Employment satisfaction	-.087	.298*	.150	.269	.041	.474**	1					
8. Learning-job-congruence	-.070	.308*	.198	.353*	.109	.403**	.579**	1				
9. Professional and practical ability	-.172	.014	-.017	.075	-.126	.186	-.052	.095	1			
10. Information technology application capabili	-.246	.043	-.002	.084	-.090	.191	.004	.017	.918**	1		
11. Communicatior coordination and team work ability	-.094	.065	-.073	.015	-.072	.207	.133	.009	.854**	.814**	1	
12. Autonomous learning ability	-.192	.033	.004	.070	-.106	.194	.090	.026	.874**	.838**	.915**	1

Note: ** p-value is significantly smaller than .01
* p-value is significantly smaller than .05

We explored the correlation between Graduate employment satisfaction, learning-job-congruence, common competency, and the difference in employment wages during the academic year of 2015 and 2016 (Table 6). We referred to the difference in the wages of graduates from the case university and all-universities as the stable wage. The findings were as follows: (1) The stable wage was significantly and positively related to employment rate, case university graduate monthly salary, and the percentage of students working in the same company; (2) The stable wage showed a significant and positive relationship among job satisfaction, learning-job-congruence; (3) The monthly salary of postgraduates in the case university has a significant and positive relationship with the starting average salary of students from all-universities; (4) The common competency

variable has no significant relation with the stable wage, however, the measures of the variable were positively related to each other.

Regression Analysis

To explore students' stable wages, regression analysis was used to predict important factors and create an influential model. The independent variables were college, day/night academic system, academic years, number of years after graduation, the number of paid graduates, the percentage of graduates working in the same company, employment rate, the scores of Graduate employment satisfaction, learning-job-congruence, and common competency. The dependent variable was the difference between the graduates' starting salary for graduates of the case university and the average of all universities graduates. The R square of the step-wise regression was .370(adjusted R square=.340). The results (Table 7) matched the correlation analysis.

Table 7: Coefficients in the stepwise regression model

		Unstandardized coefficients		Standardized coefficients			Collinearity statistics		R^2	Durbin-Watson test
Model		B	Std. Error	Beta		Sig.	Tolerance	V.I.F.		
Stable wage	Constant	-62,614.719	3,049.416		-4.798	.000			.370	.588
	Working in the same company	16,129.000	5,085.952	0.398	.171	.003	0.928	.078		
	Employment satisfaction	13,383.158	4,585.625	0.366	.919	.006	0.928	.078		

The regression equation was:

Y=-62,614+16,129* Working in the same company +13,383* Employment satisfaction (1)

Table 7 shows that the number of graduates working in the same company and job satisfaction is significant variables for explaining the stable wage (p-value <0.05). The standardized coefficients of the rate of working in the same company and job satisfaction are positively related to the stable wage. It means that as the number of graduates working in the same company and job satisfaction increase, graduates' wages become more stable.

Discussion

College and academic system

According to the statistics of 2015 and 2016 by the Ministry of Labour, Taiwan, an average wage of master's degree graduates was NT$47,056 (Day: NT$41,960; Night: $NT60,517). Also, the night system graduates in the College of Informatics, College of Management, and College of Science and Engineering earned higher wages than the overall average of night system graduates in other disciplines. In two separate reports, it was found that enrolment for master's degree courses in Science and Technology at Japanese National Universities was higher than the enrolments in humanities and social sciences (Hirasawa 1997; NISTEP 2011). The industries with tech-oriented economies that need highly skilled workers paid higher wages (Crawford 2017). Also, some industrial sectors preferred master's degree or doctoral level graduates from a specific college (Nakayama 2014). In our study at the case university, the night system graduates in the College of Science and Engineering received higher starting wages compared to graduates from other universities. The starting salary of day system graduates, however, was significantly lower than the starting monthly salary of night system graduates. These findings conform to a study on part-time postgraduate students in Tasmanian health and human services (Shannon et al. 2017), where students not only received higher wages but also showed improved job performance, self-esteem, and increased motivation to learn (Shannon et al. 2017). The reason for this is that students attending night classes in the university mostly are engaged in jobs in day time thus, they already have job experience of a few years, hence higher packages compared to fresh graduates of day academic system. It is similar to an earlier report, where it was found that graduates could reduce wage inequality by attending night classes to upgrade their skills (Chuang & Lai 2017).

Job satisfaction

The stable wage showed a significant and positive relationship with job satisfaction, learning-job congruence. It conforms with the previous research findings (Bartolucci et al. 2017; Mateos-Romero & Salinas-Jiménez 2018; Mohanty 2018). It has also been found that wage and job satisfaction as a consequence of skill mismatch is negatively related, whereas education mismatch shows much weaker effects on workers' job satisfaction (Badillo-Amador and Vila 2013; Hur et al. 2019). In our study, the correlation analysis showed that a stable wage has a significant and positive relationship with job satisfaction, learning-job-congruence. The professional skill in the working area influences job satisfaction and wages more than education training.

Social networking

Bian and Huang (2015), and Yogo (2011) found that social networks contribute to explaining of wage differential according to institutional sectors, such that job seekers with strong networks exhibit a wage premium over an average wage. In another study, social networking was found to be useful in a job search and influenced income distribution (Zhang et al. 2018). From the results

in our study, it is clear that a stable wage has a significant and positive relationship with several graduates working in the same company. Besides, social networking was a significant factor in predicting the stable wage in the stepwise regression analysis. From the Graduate employment satisfaction questionnaire survey it was found that professional training and networking with classmates were two important factors in different industries. It showed that social networking could result in an enhanced average salary and an earlier job search compared to other channels.

Public institution

The average wage of night system graduates from the Department of Applied Chemistry (College of Science and Engineering), and the day system graduates from the Department of Social Work (College of Humanities and Social Sciences) in the case university were higher compared to other disciplines. Graduates from these departments get employment in industries supported by the Taiwan government, public opinion agencies, and enterprises dealing with national defense affairs. Reports from several other countries also show that employees in the public sector received higher wages compared to the private sector. It may partially be due to better labor market characteristics of the public sector employees compared to the private sector (Berson 2016; Biesenbeek and Werff 2019; Hospido and Moral-Benito 2016; Marko 2017). The results in the present study showed that different career clusters influenced stable wages.

Implications and Recommendations

Since the competition in the job market is increasing each passing day, this question is growing in importance around the world that what universities should do to enhance the employability of their students. Besides many other aspects, designing of the curriculums for postgraduates is an important consideration the university should take into the account.

Curriculums need to commensurate with requirements by the public and private sectors. The university should facilitate career training for students to develop required competencies before they graduate and leave the campus. Through the industry-academy cooperation, and intern or curriculum committee, universities can invite the industry people, and alumni in job to share their work experience.

Regarding the day-night academic system factor, students attending night classes in the university mostly already have job experience of a few years, hence the curriculum design for the experienced students should be different from the day academic system training.

Also, concerning the variable of college, it reflects that advanced concepts, skill, and technology get higher returns in terms of salaries of managers, information staff and engineers. The curriculum design in the College of Design and College of Humanities and Social Sciences can be combined with artificial intelligence (A.I.) or Business Intelligence (B.I.); thus, the application in the working areas can be improved, and value-added. From the findings, the Graduate Education program has a positive correlation between college/program and starting wages.

About the variables of job satisfaction in order to improve the learning-job-congruence, the case university can plan and arrange career clusters' interest survey. Through Holland Codes, students automatically can understand their degree of interest in the department before graduation. Thus, they can learn and enjoy matching careers. Also, it will decrease the rate of drop-out and lead to increased job satisfaction.

At university level, social network forums can be created for teachers, students, and alumni to enhance the ease of the search for the first job. Also, alumni's experience sharing seminars can be arranged on the campus, so that current students can learn and get feedback from them. Internship opportunities, project oral presentation, visit to industries by students and their participation in industrial or business competitions will enhance the understanding of work culture and provide platforms for social networking. University graduates looking for employment need to be flexible, work on demand, and bring skills to work place as required by the employers. Also, there should be facilities for teachers to upgrade their skills as per market trends so that students get exposed to the latest information.

Conclusion

Universities take pride and attract new enrolment based on the high wages of their graduates in the job market. Therefore, it is important to analyse factors affecting students' wages for deeper insights in formulating strategies and viable plans. The present study demonstrates that college and day/night academic system influenced master's degree graduates' wages in the case university. The stable wages showed a significant and positive relationship with employment satisfaction and learning-job-congruence. In addition, personal social networking was significantly positive in predicting the stable wage. Our study also supports findings of other researchers that students with science, engineering, and technology background and those employed in the public sector received relatively higher wages compared to graduates engaged in jobs related to humanities and social sciences. Universities whose focus is on traditional career paths should be taking note. How can universities support their students for the new world of work? What can they do to ensure that students are entrepreneurial, successful, and feel fulfilled?

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