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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.

All papers are refereed by two independent persons and evaluated according to:

1. Significance in contributing new knowledge
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Updated May 2019

Editorial

The May/June 2019 issue of JIRSEA has two main features of the ten normal papers accepted following the due diligence of the double-blind review process and to celebrate the 18th SEAAIR 2018 Conference's "Best Paper" and three selected "Outstanding Papers".

The main papers are divided into three main groupings of (1) Student Learning of Virtual Learning Environment, Blended Learning of Mathematical Skills and Classroom-based debates, (2) Student experiences & relationships and (3) HEIs (Higher Education Institutions) governance, and organizational aspects of HEI's philosophical foundations, Organization Communications, Academic Talent, Accreditation and Data Analytics. These papers continued to feature Higher Education and Institutional Research centered in ASEAN, East Asia, and Middle Eastern countries.

JIRSEA that celebrated its recognition of one "Best Paper" and three "Outstanding Papers" was selected from the approved and accepted set of 86 conference papers that were presented in Jakarta, Indonesia in September 2018. Before publication in JIRSEA, these papers were requested with updates and additional revisions and additions to meet JIRSEA requirements. Other papers were published in the 18th annual SEAAIR Conference proceeding.

The Key Synopsis of the mainstream papers celebrated SEAAIR 2018 papers are as follows:

- **Lineses and Aguilar** of *De La Salle University-Dasmarinas, Cavite, Philippines* examined the use and perception of university students of Schoolbook, the Virtual Learning Environment (VLE) of the university of its "Schoolbook System" learning environment and acquisition of competencies but at varying levels because both students and teacher differ in their skillfulness in the use of new applications that Schoolbook requires.
- **Aldalalah** of *Jadara University, Jordan,* **Shatat** of *Emirates College of Technology (ECT), Abu Dhabi, UAE, **and*** **Ababneh** of *the Ministry of Education, UAE* determined the impact of blended learning on the development of the cognitive and metacognitive thinking skills of the ECT students using a math achievement test.
- **Alimen *and* Baynosa** of *JBLFMU-Molo, Iloilo City, **and*** **Detosil-Alimen** of *University of San Agustin, Iloilo City, all from the Philippines* determined the learnings of the students participating in a classroom-based debate in the Philosophy subject to organize their thoughts, respect others' opinions, decisions, and principles, think fast and handle their emotions, learn to be attentive, and stand for what is right and just.
- **Agrawal, Cheng, Chen, and Hsu** of *the Chaoyang University of Technology*, **and Hou** of *National Taichung University of Science and Technology, all from Taiwan, R.O.C.,* studied the students' lack of interest in the process of learning in universities that undermine learning motivation of students, thereby increasing the risk of dropping out.

- **Obeidat and AlKhaza'leh** of *Al Ain University of Science and Technology, Abu Dhabi, UAE* identified the social and cultural perceptions of American students toward Arab international students at a Midwestern university.
- **Hatamleh** and **Darawsha** of *Jadara University of Excellence, Jordan* identified the challenges of applying the productive university's philosophy in Jordanian universities and finding ways of developing them from the point of view of the academic leaders.
- **Abou Nasser** of *King Faisal University, Saudi Arabia* defined the academic talent management strategies at King Faisal University (KFU) from the perspective of academic staff.
- **Wattanasap** of *Mahachulalongkornrajavidyalaya University, Thailand,* and **Teay** of *King Saud University, Saudi Arabia* aimed to demystify the assessors' myth by probing into the assessors' mindset of their expectations and what and how they normally approach the performance assessment process underscoring the accreditation.
- **Pham, Dao, Doan, and Tran** of *Foreign Trade University, Vietnam*, estimated the predictors of GPA by using the two-stage least squares (2SLS) method to highlight that parents' occupation as farmers and living location in rural areas harm the GPA of students at university (University GPA).
- **SEAAIR 2018 "Best Paper"** of **Jang, Wei, and Kim** of *Sungkyunkwan University, Republic of Korea* ***e***xplores the possibility of education informatics in higher education by introducing a case study of Sungkyunkwan University in Korea
- **SEAAIR 2018 "Outstanding Paper"** of **Somasundaram and Rasul** of *Central Queensland University and* Danaher *University of Southern Queensland, Australia* discussed new understandings from the Science of Learning that combines emergent knowledge from neurobiology with social and cultural timelines to propose a nuanced and situated "*fishbone*" model of human life processes
- **SEAAIR 2018 "Outstanding Paper"** of **Salumintao** *and* **Cinches** of *Liceo de Cagayan University, Philippines* aimed to establish a model that explains the personal financial practices of millennial students as indicated by financial knowledge, financial attitude, and financial behavior; financial socialization agents such as parents, peers, school and media; and the Personal Finance Practices. Multiple linear regression
- **SEAAIR 2018 "Outstanding Paper"** of **Ganub, Ramos, Pestaño, and Reyes** of *University of St. La Salle, Philippines* conducted an explanatory sequential mixed-method study that investigated the existential realities of students with absentee parents.

Associate Prof. Teay Shawyun, Ph.D.

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Ubiquitous Learning, Innovative Teaching: Students' Use and Perception of Virtual Learning Environment (VLE)

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ABSTRACT

This study seeks to examine the use and perception of university students of Schoolbook, the Virtual Learning Environment (VLE) of De La Salle University-Dasmarinas, Cavite, Philippines. Using a survey, focus group discussions, and in-depth interviews, students enrolled in blended classes were asked their views on the affordances of Schoolbook and the capability of the faculty members in using it. Several findings were notable. Students indicate that learning transpires in Schoolbook, albeit, not as much as in a traditional learning environment. The discourses likewise reveal an acquisition of competencies but at varying levels because both students and teachers differ in their skillfulness in the use of new applications that Schoolbook requires. The study recommends that schools utilizing VLE must consider the preparedness of the teachers and students in the use of a virtual platform as much as the infrastructural requisites of internet speed and reliability.

Keywords: Blended/Flipped Classes, Virtual Learning Environment (VLE), Learning Management Systems (LMS)

Background of the study

Discussion on the merits and demerits of being in an e-class is common among students of blended classes in De la Salle University—Dasmariñas (DLSU-D)*. A considerable number of DLSU-D faculty members have adopted blended classes, widely understood as classes that incorporate both the traditional on-site (face-to-face) instruction and emergent online (virtual) learning sessions. Often, these classes take the form of flipped classrooms where students learn the contents online while time in the classroom is spent on homework discussions or problem-solving with teacher's assistance (van Vliet, Winnips, & Brouwer, 2015; Horn, 2013; O'Flaherty & Phillips, 2015; Garrison & Kanuka, 2004).

The online classes are done in a Virtual Learning Environment (VLE), also called Learning Management System (LMS). It is an integrated set of online tools, databases, and online-managed resources that exist as a coherent system functioning collectively in support of education (Cook & Ellaway, 2015).

DLSU-D's VLE platform is known as the Schoolbook (SB). It is used to create and deliver content, provide an avenue for student participation, and assess student performance. It is a tool to enrich the learning experience and strengthen student-teacher and student-student exchanges beyond the classroom.

Students appreciate the expediency of SB because learning to them becomes ubiquitous and 'is more convenient, only a phone is needed to participate in a class or do assessments', it is 'high tech' and 'it lessens transportation expenses because you don't have to come to school'. On the other hand, some students voice out their complaints ranging from 'if the internet is slow or down, you cannot do any assessment, or even just read'; to the more substantial ones: 'teachers upload too many materials, it's still different when a teacher is in front explaining'; and 'the assessments could be done by others'.

Faculty members resonate with the student's views on the use of technology in learning and teaching. Those who support the use of SB extol its affordances: multiplicity of materials that can be used, transparency of grading, convenience in class schedule, and being at par with big universities here and abroad, among others. Others noticeably express disapproval for virtual learning in general, citing very limited teacher-student and student-student engagements in the impersonal setting.

To the administrators, the subscription to a multi-million virtual learning tool and the consequent directive requiring its use is an acknowledgment of the crucial role that technology and the internet play in promoting teaching efficiency, in augmenting the limited resource of teachers, and in globalizing the university's instruction.

The above situations may have captured superficially the notions of the different stakeholders—students, teachers, and administrators—in the university regarding the use of the platform but a deeper look at VLE in general, and SB in particular, is crucial to revealing how pedagogy in the

university has been and is continually changed by its affordances. This ought to be solicited from the ultimate beneficiary of learning technology, the students. After all, aiming for efficiency in teaching should be validated by the efficiency of learning on the part of the students.

Literature Review

Today's age of competition is the period of 'informational society' marked by modern technology and digital connectivity (Giroux, Flecha, Freire, Macedo, & Castells, 1994). The flow of information and their connectivities underpin the re/organization of all aspects of human life, from the biological to the social, to the economic and technological, and even to the foundations of the networked space in education (Selwyn in Apple, Ball, & Gandin, 2010; Luke 2006). In the area of education, Jarvis (2000) argues that schools need to continually adapt to find their place in the emerging learning society. It demands the need 'to be taught or to learn, new information and acquire new knowledge and skill to keep abreast with the changes' (p. 75) in society.

Germane to globalization's thrust of restructuring educational priorities, skills, and competencies lamented by Gutek (2009), university administrators encourage both faculty and students to become globally competitive—to adapt, to continuously learn, and to acquire skills needed for the 21st-century education. This movement means a shift from traditional, classroom-based teaching-learning to ubiquitous e-learning, using VLE. Indeed, the use of new educational technology is the common response of the universities to the internationalization forces of globalization in education (Jarvis, 2000).

VLE is a platform to create and deliver content, monitor student participation, and assess student performance (Weller, 2007; Weiss, 2006). It is often understood as 'electronic information system (IS) for the full administrative and didactical support of learning processes in (higher) education(al) and vocational training settings' (Muller, 2012, p.1). It is a learning setting mediated by computers and digital technologies. The use of VLE is a relatively recent phenomenon and is driven by the increasing ubiquity of computer-based activities in education, the ever-growing pressures for increasing the quantity and quality of educational efficiency and student support, and the technical opportunities provided by increasing developed web technologies.

VLE, with its limitless potential, is seen as the fitting platform to be in synch in this digital age, especially with learners who are considered digital natives. VLE is now increasingly used in schools, specifically for higher education (Franetovic, 2011; Bayne, 2008; Weller, 2007). However, the biggest criticism of VLE is expressed by Conole (2004): although technology is now common place in most higher education institutions there is little evidence of significant impact on teaching practices, and 'e-learning is still marginal in the lives of most academics' (p. 476). This is echoed by Brown, et al. (2006) who concluded that the transformative impact of VLE on instructional practices has yet to be realized. Rienties (2016) posits that although VLE

utilization may have been exponential, many teachers use these VLEs as a simple repository of materials, such as presentation files and reading lists for students. Hence, pedagogy has remained tied to the traditional face-to-face teaching method. A large body of research demonstrated that many teachers use only a minimum of the affordances of VLEs (Rienties et al., 2012; Jenkins, Browne, Walker, & Hewitt, 2010; Sanchez-Franco, 2010; Jimoyiannis & Komis, 2007; Browne et al., 2006).

While debates on the use of technology in learning being innovative or disruptive continue, Conole, De Laat, Dillon, & Darby (2008) suggested the need to explore students' experience and actual use of e-learning. Their findings revealed that the use of technology was not just simply an 'add-on' to students' learning but central to how they learn. The study concluded that technology opened up a variety of possibilities to engage students in a range of different learning processes.

The framework of the study

The technological imperative in the field of higher education has compelled the utilization of e-learning via virtual learning environments. This study is premised on e-learning as fundamentally about learning, not technology. The use of e-learning in itself does not constitute an enhancement of the quality of teaching and learning, but it can potentially facilitate and enable such enrichment. Technology is seen as a useful tool to transform higher education into a more student-focused and flexible system whereby technology-enhanced learning is envisioned to become a normal part of the mainstream provision, processes, and practice, rather than being distinct from other forms of learning and teaching. In other words, technology made learning opportunities ubiquitously (Burbules, 2011).

As the university's VLE, SB contains an integrated set of tools, databases, and other resources, all managed online as a coherent system. The complex system's parts can be simplified into three major components: people, technologies, and services. The current study resonates with the conclusion of Aparicio, Bacao, and Oliveira (2015) who maintain that any e-learning system would contain the three parts and that their interdependence is established.

*People***.** The end-user for any VLE are the learners. It is important to note that as a complex system of online learning and teaching tools, VLE involves other stakeholders: instructors, educational support staff such as instructional and web designers, and other IT personnel. However, attention is more focused on teachers as facilitators of the learning environment because how they utilize SB determines what the students will learn. Since the goal of the current investigation is to generate an understanding of general perceptions about SB rather than articulate empirical claims about their value, data were collected from a sample of learners, specifically college students of DLSUD, the primary beneficiaries of the VLE.

*Technologies***.** Through technologies, SB's affordances support digitally-enhanced content, enable communication between and amongst learners and teachers, and provide collaboration tools. Moreover, as an e-learning system, SB integrates all the activities corresponding to pedagogical models and instructional strategies. In particular, the study is focused on the infrastructures that make up the technology such as but not limited to the availability of computers and internet connectivity in the university.

*Services***.** As an e-learning system, SB provides services according to the specified strategies for activities aligned with the e-learning pedagogical models and instructional strategies. These are similar to the concept of affordances. Hence, a thorough description of the affordances of SB is essential in this study. Services are considered here as the main output as they operationalize instructional strategies and several pedagogical models.

The study assumes that for these affordances to enrich the teaching and learning processes, the students must possess the understanding and the skills to utilize these technologically enhanced materials.

The relationship of the three interdependent components of DLSUD's VLE is summarized in the diagram below.

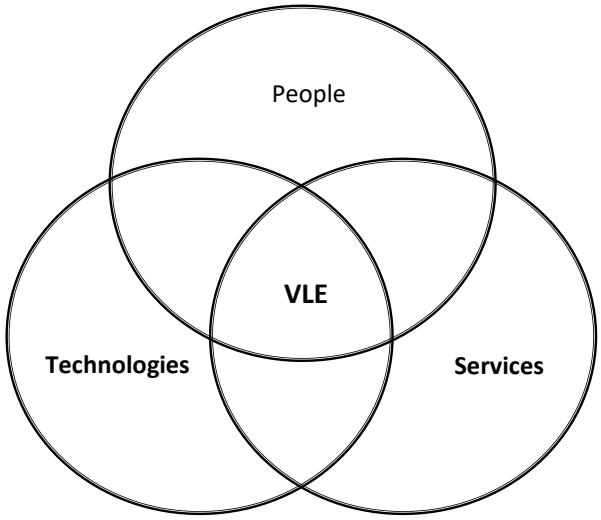

Figure 1: The framework of the study

The research questions

The study investigated VLE as contextualized in De la Salle University-Dasmariñas (DLSU-D), Cavite, Philippines. In its nascent stage, the need to determine how VLE is perceived, understood, and implemented cannot be overlooked. Specifically, the paper sought to find out the affordances that VLE provides to the realm of e-learning. Further, it attempted to uncover how the stakeholders: primarily the students and the administrators, perceived and understood the use

of technology in learning and instruction. It argued, that VLE, notwithstanding its use and practice, is central to how students learn in the 21st century in providing them possibilities to engage in different learning processes afforded by the use of technology.

The findings served as an important basis for enhancing VLE in the university, given the school's mandate to fully embrace it.

Methodology

The study investigated the students' views on the efficiency of SB, the university's VLE platform. In particular, it looks into SB functions that students use, the benefits they derive from their usage, the inadequacies and problems they encountered, and their take on the readiness of their professors to utilize a new learning tool.

To gather data, two methods were used: survey and focus group discussion. For the survey, a 20-item Likert-scaled questionnaire was used. It underwent content validation from faculty members, an administrator, and students. The tool covered the extent of the students' use, access, information, assessment, outcome, and their views on their teachers' and classmates' use of SB. The questionnaire was then pilot-tested to 10 students enrolled in blended classes.

For the FGD, a 12-guide question set was formulated to dig more into the perception of the students and triangulate the results of the survey questionnaire. The questions asked delved on the following: 1. Familiarity with the use of schoolbook in one's course; 2. Knowledge of SB affordances; 3. Ease of access of SB within DLSU-D; 4. Frequency of access and purpose of logging in to SB; 5. Ease of access outside of DLSU-D; 6 Practical advantages of using SB; 7. Academic advantages of SB; 8. Disadvantages of SB; 9. SB and role of teachers; 10. How blended classes are managed by teachers? 11. Comparison between blended and face-to-face classes; and 12. Future of VLE technology in education.

Data gathered from above were supplemented by an in-depth interview with administrators directly managing SB in DLSU-D: the Vice Chancellor for Academics and Research (VCAR) and the Director of the Center for Innovative Learning Program (CILP) that takes charge of providing technologically driven learning and instruction for the faculty and students.

Questions asked included the following areas: Rationale of the university for investing in a VLE; 2. Cost and benefit of adopting SB; 3. Views on how students receive SB; 4. Views on how the faculty receive SB; 5. Faculty capability on SB usage; 6. How SB is accommodated in DLSU-D's culture; 7. Problems and challenges on SB usage, and 8. The future of SB in DLSU-D.

A hundred students enrolled in blended classes and the Academy of Continuing Education (ACE), a fully online program of the university, were conveniently chosen. They were sent a survey questionnaire created through a google form. Moreover, two FGDs were done. For each of the two FGDs, there were 7 students enrolled in blended classes who participated.

Affordances of Schoolbook

SB offers affordances to both the teachers and students. Some of these include a *Course List* to view what courses one is teaching (for teachers) or is enrolled in (for students); a *Group* to create groups and members with dedicated dashboard and feed; *Dashboard* to give the user a snapshot of important things in SB such as list of subjects, to-do's, announcement, today's lesson, upcoming assessments, school calendar, and links; *News* to post, pinned, automatically send to all enrolled users; *Resources* to upload links, files, and the like; *Report* to provide overview of all whole SB including history; *Messages* to providing a built-in messaging app to communicate with teachers and students; *Calendar* to automatically plot all deadlines of needed assessments; *Assessments* to evaluate students of their performance, i.e. quiz, essay, survey, debate, discussion, team assignment, or offline uploading of points; *Gradebook* to serve as a class record and configurable tool in automatically computing running performance/grades; *Mastery* to tabulate the level of proficiency of the students based on their scores per assessment; *Students*/*Professors* to provide the names and the links if one needs to reach out to them; *Games* to gamify learning in SB with assigned points, ranks, badges, certificates, etc; *Attendance* to provide a viewable report of the number of times of presence, tardiness, or absence of students; *Forum* to provide a platform for teachers and students to discuss, comment, or suggest about anything the topic in forum provides; and *Wiki* to collaboratively post and modify contents serving as a database for everyone in the class to post, edit, or expound a topic.

Perceptions on Schoolbook

In today's technologically advanced age, the field of education can provide a plethora of excellent online tools that can enrich conventional classroom instruction. In the university, the SB offers a vast array of affordances designed to enhance teaching to consequently optimize students learning. To determine this, the study solicited the views of students, the ultimate beneficiaries of any VLE.

*Knowledge***.** All the respondents are knowledgeable that SB is used in DLSU-D. In terms of usage, they strongly agreed to the statement "I know how to use schoolbook in my subjects" ($\bar{x}$ = 4.48). This is despite having no official orientation about this VLE; they learned how to navigate SB through their initiative, a hands-on trial, and error method as soon as their professors gave them the login access code for their subjects.

Nonetheless, engineering students professed that in their major subjects, teachers seldom utilize SB claiming that it cannot suffice:

> 'As engineering students, we agree that schoolbook cannot be used in our major subjects because teachers have to see us draw our plates, and while we are drawing, we can ask our teacher right there, so we know how to draw or our drawings will be corrected as soon as mistakes are committed'.

Students also concurred that SB should be minimally used in Math and other skills-based subjects because teacher supervision is needed and besides, symbols and formulas cannot be easily encoded in SB.

*Usage***.** On average, students stay logged in to Schoolbook for less than 3 hours spread over in a week ($\bar{x}$=140 minutes, mode/median = 120 minutes). Students explain why they use Schoolbook sparingly: logging in takes time especially if the internet connection is slow if they can't log in the first try, they don't bother repeating, and after downloading the lessons, they log out right away because they can study at their convenience using the file they downloaded. Still, the most important cause for short log in time is shared by one participant during the FGD, to which everyone agreed:

> 'When you go online, you are tempted to open other sites, and teenagers like me have many social media accounts. So, when I log in to my schoolbook account, I also log in to my social media accounts, and before you know it, I've spent so much time on Facebook especially. Because I haven't clicked any button after logging in to my schoolbook account, by then, it has timed out that I have to login again, which I usually no longer do'.

When asked what they mostly do when they login to their account in SB, it is mainly to download lessons/notes posted by the professor (87%) and to answer assessments (88%).

This dependence on the professor was further explained during the FGD: students claim that tests most often are taken from PowerPoint presentations uploaded by teachers, and not from long reading materials mostly uploaded too, where the presentations were based on. Except for a few teachers who give creative assessments using gamification, most teachers give the conventional tests which can be easily answered by the student because notes may be simultaneously opened in other windows.

*Communication***.** When asked whether SB should be used to communicate to their teachers regarding questions or concerns they might have, students have a dissenting opinion as to the table below shows.

Table 1: Should schoolbook be used to communicate with professors regarding any concern?

Response	Frequency	Percent
Strongly Disagree	5	5.0
Disagree	23	23.0
Agree	23	23.0
Strongly Agree	17	17.0
Don't know	32	32.0
Total	100	100.0

Students voiced complaints regarding non-reply to messages they sent to teachers. One student exclaimed the sentiment of the FGD participants:

> 'Schoolbook has messaging feature, and we think, this is the way to reach your professor whenever you have a concern. Sadly, very few respond to messages, and mostly, it's after three days'.

The CILP director noted this concern saying that,

> 'We know there are teachers whose unread messages and notifications reach up to 200! This defeats one very important purpose of having a VLE, and that is, the convenience of communication between teachers and students'.

As for student-to-student communication, the same difference of opinion can be gleaned. When students were asked regarding the use of the schoolbook to communicate with classmates with school-related matters, no consensus is noted.

FGD results explain why student-student communication is not usually done in SB. If it is a personal message, students prefer social media sites, like Messenger or Viber. For project-related matters, which are done by the group, they mostly form Facebook groups and have their discussion there because group messaging in SB is not possible. Nonetheless, students assert that if their professors require that discussion thread be posted in SB, then they are forced to comment.

*Peers***.** Students were also asked how their classmates fare in terms of the use of SB. Of the hundred respondents, 74% agreed that their classmates are very good at using SB. They explained that it is very easy and convenient to use (85%) and it can be accessed anywhere and anytime (60%). One student reiterated the claim of many young people, 'We are millennials. We are used to technology. We find it 'naturally easy' to use computers and their programs or logging on to the www'.

*Access***.** The students however qualified their answer expressing negative responses when asked whether ease of access to SB is experienced within the campus. As Figure 1 shows, not everyone agreed that within the DLSU-D premises, accessing it is easy; a considerable number of students find the internet inside DLSU-D a problem.

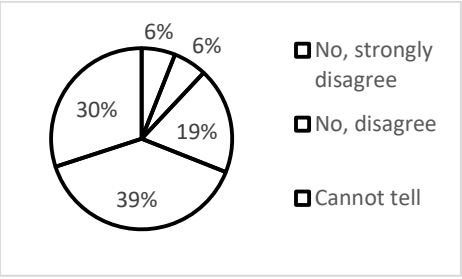

Figure 1: Can you access it easily within DLSU-D?

Students claimed that accessing schoolbooks in their homes is easier (X=4.40) compared to when they are in university ($\bar{x}$ =3.81). Furthermore, the statement "DLSU-D's internet connection allows fast and efficient use of schoolbook" received a $\bar{x}$ of 3.06 signifying that students indeed find it problematic to access SB within DLSU-D.

*Teachers***.** Students were also asked to rate their professors in how well they use SB. Only 33% strongly agreed and 41% agreed that their professors are very good at using the schoolbook, while the remaining 26% rated their professors' use of the schoolbook negatively. In the FGD, students think that many teachers use the schoolbook barely, and rarely, too.

Dr. Marco Saez, the university's Assistant Vice Chancellor for Academic and Research (AVCAR), affirms that DLSU-D has yet to maximize the capability of SB, recognizing the need for training for faculty members. Roland Ruben, the CILP director resonates with this observation stating that,

> 'Some teachers think that we just upload lessons in the schoolbook and that's it!. It's wrong. Just as we engage our students in face-to-face classes we must also engage our students in our e-classes'.

However, the students do not generally perceive the teachers as inept. When asked what their professors most often do in SB or the features they use, the following common VLE tasks were mentioned during the focus group discussions: upload files, create announcements and give assessments. For the CILP director, these are not enough because the affordances of the schoolbook are vast. He further explains that the goal is to be able to fully take advantage of what the schoolbook is capable of, and it is the teacher/professor who needs to do this. He explains that,

> 'The teacher who has maximized the capabilities of schoolbook is someone who does not stop discovering. One who is not contented with uploading lesson materials and giving objective assessment types. He is someone who has the student in mind, he is the guide of the student in this virtual environment. He gives introductions to uploaded lesson materials, gives clear instructions in the assessments, and gives immediate feedback'.

*Engagement***.** Students also agreed that the fun part, such as wikis and gamification are seldom used as few teachers incorporate them in their lessons or assessments. Some students lament that in the end, SB seems like a drop box for assignments and projects.

When asked whether the use of SB has improved their interest and engagement in learning, a mere 27% strongly agreed, and 33 % agreed, while the rest of the 40% thought otherwise. Furthermore, when it comes to the ability of the schoolbook to reduce dependence on teachers given that they think the schoolbook has given them access to a lot of materials (51%), 56% said it had reduced, while a considerable number said (44%) it has not.

*Performance***.** In the end, it is very important to ask the students if SB has been instrumental in improving their performance. There seems to be ambivalence on the part of the students despite getting a $\bar{x}$ of 3.88, as shown in the chart below.

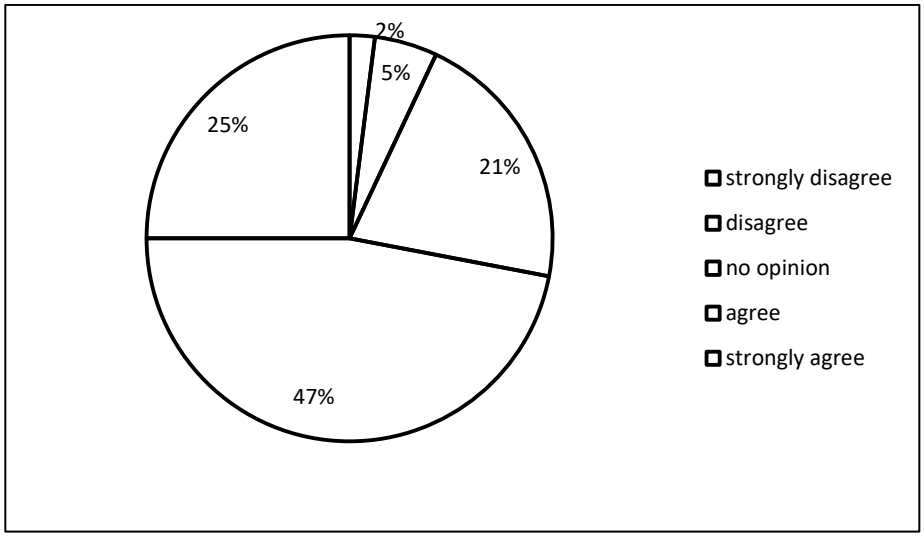

Figure 3: Has Schoolbook improved your performance?

Ebbs and Flows of SB

When asked to comment on the best features that SB has afforded them, the following sums up the major themes gleaned from the students. First, VLE provided *convenience* to them. This learning tool afforded them easy access to lessons and assessments anytime, anywhere as long as there is the internet. It also allows them to self-study or does an advanced study, as it allows retrieval of past notes even on completed sections/courses. Second, VLE provided them *efficiency*. It substantially decreased school-related expenses as paper submissions became paperless aside from cutting transportation costs. Technology has enriched their learning as more and enhanced resources and learning materials are available online. Third, VLE offered *transparency* in grades and assessments as virtually all of the affordances are right before their eyes and at the tips of their fingertips should they want to know how they fared in classes, without the need to look for the professors and their class records.

However, students lamented that they disapprove of the use of SB as it requires real *accessibility*. To make the most of online tools, it required fast and reliable internet. This is barely experienced on the campus nor the country in general. Access is also at stake because of the program interface and bugs. Many had problems with log-in delays; no copy-paste features, no instant messaging reliability, and no pop-ups, aside from having no stable app for mobile gadgets. Secondly, teachers need more *proficiency* in utilizing VLE. Teachers made the use of technology difficult for them. Students observed and noted that many teachers' instructions are confusing,

they were given inadequate time allotment for assessments, too many assessments, aside from their teachers' limited knowledge of SB's features.

Discussion

Despite the affordances, there is still a lot of resistance to the use of SB. Although the administration, through CILP, wants faculty members to go blended, a few have been doing it. The argument against blended courses is mainly the lack of student-teacher and student-student engagements that traditional classroom-based, face-to-face instruction affords. Such claim mostly stems from faculty members. On the part of the students, a study has yet to be undertaken to validate their claims that they learn less from blended classes compared to traditional classes.

Although the reception for SB is not altogether positive, students overwhelmingly think SB should not be scrapped. Web presence is preferred by most because it does not rely on e-class 50% of the time which students note are not utilized as they should be. They assert that e-classes have become an excuse for some teachers to be absent in class. They maintained that SB cannot replace the learning that happens in face-to-face teaching and learning in the classroom. The CILP director explains that e-classes can approximate face to face classes but,

> 'This involves hard work. Lots of time for preparation. When teachers don't do the right thing, the schoolbook gets the wrong image. Schoolbook is not just uploading lessons and giving assessments. It is redefining what teacher-student interaction is, or what assessment is. When done creatively, schoolbooks as a VLE can approximate face-to-face classes, even surpass them. Advanced countries with advanced VLEs have very functional and interesting distance education. It can be done'.

A few insist that blended classes fit their majors, mostly among the Communication and Journalism students. One asserted that SB allows the student choices,

> 'to be able to manage our time well given so many tasks we have, we need to be given room for choices. Schoolbook does that. For example, we are asked to do a movie review or an analysis of the directors' approach, we need to watch with other classmates because we have to discuss while watching and after watching. Film analysis is more profound if you can hear the views of others. Besides, we do not just watch once. Or we need to review certain scenes'.

Learners have taken over the technology to use it in their learning situations. They have innate knowledge on how SB is used, regardless of whether they were not taught or told about how to work around the platform. They however lamented the number of their teachers who are not keen on using SB nor were they familiar with its affordances. This is the reason why SB is not maximized because some teachers do not know more than they do; that when they use the messaging system of SB, they often never get a reply from most teachers. Most comments of the learners have to do with the internet, either in their house and more so in the university. If not for

lags and bugs in the system or connection, the connectivity requirement is not that appropriate yet to the university or the country in general. The learners may have transformed pedagogy into what they knew and what they wanted; it is just that many teachers are not that prepared nor the infrastructures equipped for the demands of the new technology in learning. However, changes in structures alone are not the only way to produce substantial improvements in the teaching and learning processes in VLE (Horn, 2013). This has to be systemic, which requires improvement on the part of the learning facilitators to speak the language of the learners. This is akin to what Aparicio, Bacao, and Oliveira (2015) asserted that any e-learning system to work must ensure the function and interdependence of people, technology, and services.

Studies suggest that one of the primary components of effective teaching (and consequently learning) is student engagement. Learners can only be engaged if they were supported by teachers who established an inviting learning environment that demands high results and high order thinking that will enable them to reflect, to question, or to make connections between concepts prompted by the lesson at hand (O'Flaherty & Philips, 2015). The use of VLE in the university is thus far from ideal.

Blended learning as applied in the university can be an effective strategy that positions the university for the onslaught of technological advances in the area of education. In the study of van Vliet, Winnips, and Brouwer (2015) in Amsterdam, the use of blended class though found to have enhanced the components of critical thinking, task value, and peer learning, the effects were not that long-lasting yet. Thus, proposing a repeated use of flipped class pedagogy in a curriculum to make the effect on deep learning more sustainable. In an interview with the university's VCAR and the Director of CILP, they both recognized the value of a new learning tool that has yet to be maximized to ensure that learning is optimized for students with new demands, new ways, and a new language of learning. This is a challenge to be hurdled by the university as it still has a long way to make the most of what VLE affords.

Conclusion and Recommendation

What do practitioners (learners and teachers) consider to be the underlying principles and raison d'être of using the SB, DLSU-D's virtual learning environment? As claimed, SB renders learning ubiquitous. No specific time and place are needed for learning to take place.

SB heaps commendations as respondents perceived it to be more time effective and cost-efficient, especially during unplanned class interruptions, such as the recent power outage. Teacher-student communication is immediate. Learning materials are likewise easily uploaded not just by teachers, but by learners as well. Hence, DLSU-D's VLE becomes a tool to achieve a particular pedagogical goal, i.e. enabling more effective information-sharing. Allowing easy access to notes and other materials has several consequences for teaching and learning processes: it requires new preparation routines for the students as they are expected to access the online notes before the lecture. It also opens a window into the teacher's preparation process. In

that respect, students are afforded a chance to study ahead of face-to-face discussions or to master lessons that are yet to be discussed via notes, links, videos, among others, uploaded by the teacher. Hence, VLE renders the learning ascendancy of teachers obsolete. Consequently then, VLE could be seen as an equalizer: teachers no longer have the monopoly of content.

On the part of the teachers, the preparation process is the part where the problem lies. Teachers in general minimally prepare their materials such that although its introduction brings about new pedagogy, i.e. teaching practices that incorporate online materials, there is little indication that it has had any revolutionary effect on the existing learning style in DLSU-D. While administrators trust that VLE would be embraced wholeheartedly by lecturers and students alike, evidence from this study showed that many teachers underutilized some of the affordances of SB, while others chose not to use the system at all. It seems that the teaching and learning based on established practices, notably, the traditional face-to-face are not easily shaken.

The use of SB as a VLE imposes different needs and constraints upon the planning, preparation, delivery, and maintenance of learning and teaching situations, which many teachers are at best unaccustomed, at worst, unwilling to adapt. However, the use of technology particularly VLE is called for at this time as this is now the language of student learning that provides students with a plethora of learning opportunities, anytime and anywhere.

The study presupposed that for students to benefit from VLE, teachers utilizing automated instructional methods must properly incorporate theories of teaching and learning into the execution and design of their discipline content. Therefore, attention should focus on the way the technology is experienced by student users, rather than the potential benefits of the technology itself.

The study, thus, recommends that schools and universities that utilize learning management systems must take into consideration the preparedness of the teachers and students (people) to use a virtual platform (services) in as much as the establishment of infrastructural/technological requisites of internet speed and reliability (technology).

Endnote

*De La Salle University-Dasmarinas is a higher education institution south of Manila in the northern part of the Philippines. It is a member of De La Salle Philippines (DLSP), a network of 17 Lasallian institutions. It is a Catholic private university run by the De La Salle Brothers.

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The Impact of Blended Learning on the Development of the Cognitive and Metacognitive Thinking Skills in Mathematics of the (ECT) Students

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ABSTRACT

This study aims to determine the impact of blended learning on the development of the cognitive and metacognitive thinking skills of the Emirates College of Technology (ECT) students through the analysis of the theoretical basis and previous studies related to this subject. This study has identified the list of cognitive and metacognitive thinking skills. In this study, the researchers used a math achievement test consisting of 20 questions. Researchers showed that students using the blended learning instruction performed significantly better in cognitive and metacognitive thinking skills than students using the conventional instruction. High achievement students performed significantly better in cognitive and metacognitive thinking skills than low achievement students. Blended learning instruction was found to help students with low achievement in cognitive and metacognitive thinking skills.

Keywords: Blended learning, Thinking Skills, Cognitive, and Metacognitive.

Introduction

The knowledge of today doubles exponentially, which adds a further burden on the educational institutions to keep track of the accelerated developments. What should be taught and how to choose the best learning content from this tremendous knowledge? What are the educational means to teach the selected knowledge? What is the learners' role and how can they retain and recall the learning? More importantly, how can learners employ the learning, develop and build on the knowledge attained? These questions and many others indicate educational concerns in the 21st century. In response, educators have been concerned with the questions like How to teach students to become self-learners to attain the competencies and skills needed in this age. Against the interest of education with such questions, there has been greater interest in enhancing the skills needed for learners at the higher education institutions such as higher thinking skills, problem-solving, cognitive thinking, and metacognitive thinking skills (Alabsi, 2016). Because of the increase in the bulk of knowledge, teaching methods have changed. Teachers are prepared to teach, starting from teaching based on the idea that science is a cognitive object that is offered to learners to pay attention to the ways by which the learner accesses and uses these sciences and scientific knowledge. Educational institutions have been racing to develop their educational systems to enhance the quality of their education to attract more students, especially when the technology of education has contributed to changing the way learners think. Educational institutions aim at preparing children for the fast-evolving future using the skills of higher thinking and metacognitive thinking skills (Shatat, Aldalalah & Ababneh, 2017). Interest increased in the learner's possession of the skills of using computer technology to be able to access and use knowledge in a way that shortens efforts and time in learning. It has become one of the pillars of teaching scientific materials to teach learners how to think, control their thinking, and how to master the skills of thinking and metacognitive thinking (Jbeili, 2014). One of these methods is blended learning, a method of education based on the use of technology in the teaching-learning process; it works on organizing learners' knowledge, skills, and information; and evaluates their performance, attitudes, and educational experiences provided to learners through the latest technology, and thus learners are enabled to use the skills of metacognitive thinking and utilize what is provided by the blended learning through facilities that improve the learning process (Aldalalah & Gasaymeh, 2014). It is found that a learner, through proper, education exploits the skills of cognitive thinking and metacognitive thinking skills and works on the development and promotion due to integrating the student in these educational situations, which stimulates and deepens the process of learning (Qarareh & Hajeh, 2013).

It is noted that blended learning takes into account the principle of the individualization of education, each student is a self-learner according to his ability, as blended learning provides distinctive learning by providing the teaching material, which enables the learner to solve the problems that are presented to him according to the skills of metacognitive thinking. Blended learning is attached with the skills of metacognitive thinking in that it works to achieve the goals faster by motivating positive and effective participation and achieving the required activities

saving time and effort in processing the teaching materials that mimic the different thinking patterns of the learner, and thus stimulates the cognitive thinking skills and the skills of metacognitive thinking in him which were difficult to be stimulated and activated traditionally; the learner works individually and communicates with the teacher to provide him with advice and direct and indirect guidance; hence, the learner is more flexible and interactive in learning well and is allowed to use the skills of metacognitive thinking in solving problems presented to him as he sees suitable (Alshahwan, 2014).

Blended learning provides learners with the ability to communicate with the teacher and other fellow students through the means of social communication through the Internet and the various educational programs provided by the technology, which is reflected in the skills of metacognitive thinking. The student finds an answer to every question in his mind, making it easy to move from one task to another; what is confirmed by the study of Husamah (2015) indicates that directing learners to ask questions before, during, and after application helps them link new experiences with previous ones in their knowledge structure. Further, Jbeili (2004) indicated that these questions help students discover their ambiguous aspects, correct their misconceptions, and thus construct meaning as a result of the interaction between their knowledge and the new experiences; therefore, they convey their acquired knowledge and experiences to similar situations, creating a certain mental orientation for students and guidance that directs them in learning and processing information. Sadalla (2014) points out that this is effective learning: as blended learning gives learners the freedom to invest their potential and capacities to focus on learning objectives and be able to repeat. The students' employment of metacognitive thinking skills has helped make guided and systematic use of educational software production. Moreover, the studies of Najjar (2007) suggest that students who employ metacognitive thinking skills are more aware of their learning steps and cognizant of their thinking when performing a particular task and can employ this awareness in selecting materials and tools that are required and appropriate for their learning.

Qarareh and Hajeh (2013) indicate that blended learning has a big role in the learner's understanding of the importance of what he learns, in performing activities and experiences, visiting websites, solving working papers, and making positive dialogue through these sites, in addition to applying what he has learned in new situations; where the learner sets the steps of solution and work (stages Implementation of activities). A learner can also mention the obstacles encountered and this is what is found in the implementation and solving of problems based on the use of the skills of metacognitive thinking. Husamah. (2015) points to the contribution of blended learning to understanding the obstacles encountering the learner and how he can overcome them personally or by using different sources of knowledge through the Internet or by the help of others in the lesson or face to face; or through electronic media that increased learner understanding of the learning material and activities. The methods and strategies used in blended learning, whether individual learning (offline) through PowerPoint presentations, video clips,

flash clips, websites, e-books, or connected learning face to face through direct teaching methods, training programs, practice, simulation, scientific presentations, and the accompanying feedback and the Internet have made it is easy for the learner to understand the purpose of learning. And this would enable him to apply what he has learned in other learning, making it easier for learners to understand and comprehend the skills of metacognitive thinking.

Cognitive and Metacognitive Thinking Skills

Thinking is a mental process practiced by humans spontaneously. Thinking, therefore, is an essential part of our daily life by which we can set goals, plan and solve problems we encounter (Albado, 2017). Thinking is the main feature in humans that can be nurtured through education, training, and practice, so the concept, thinking has attracted the interest of education and educators attempted to conceptualize the concept of thinking in different ways (Haydar, 2011). As noticed, the thinking skills needed for a learner are varied and diversified, and that should be sharpened to deal with the current voluminous quantity of knowledge in various areas of life. The interest in thinking skills is critical to sharpen intelligence and solve problems of the day. The present study, therefore, deals with the cognitive and metacognitive thinking skills that are needed for everyone (Alkhawaldeh, 2015). In cognitive thinking, the cognitive repertoire owned by an individual is employed in practical life to explore facts since cognition and cognitive thinking are associate with the ability to perceive facts, collect data, and process (Zimmerman, 2007). There are several ways to acquire cognitions including the five senses in humans, analysis/ reflection, and experimentation (Alksab, 2016). The cognition acquired through experiment enhances the practical cognitive skills of learners by building a sequential structure of learning skills such as attention, memorization, thinking, thereby the develop the capability of processing physical and abstract facts, synthesis and analysis, and evaluation (Alcoba, Mostajo, Legaspi, Ebron, & Paras, 2018; Takala, 2006). As a result, learners become able to make inferences and link between the relationships to find out solutions for the problems encountered (Turkmen & Sertkahya, 2014).

The concept of metacognitive thinking skills is directly linked with intelligence theories, learning, problem-solving strategies, and decision making and the effect of all of that on effective learning (Hamdi & Ahmed, 2017). As a result, the interest in teaching learners' metacognitive thinking skills has increased for learners to become able to think in their thinking, comprehend and understand one's ideas, self-speech, and the ability of conscious planning to solve the problems encountered (Abdullah, Rahman & Hamzah, 2017). Thereby evaluates the efficiency of thinking for oneself. In the conclusion, the interest is not about the facts and information, but in the thinking itself, thereby the learner's creativity increases and becomes able to build the process the knowledge rather than passive recipients of the facts and information and retrieve them on the test without processing (Elmekawy, 2014). As for the concept of metacognition, earlier psychology research was focused on memory and met memory, mindfulness with the thinking process or thinking in the thinking that there are multi definitions of metacognition due to interference between cognitive and metacognitive processes (Sedhu, Ali

& Harun, 2017; Jbeili, 2013). John Flavell described metacognitive thinking processes as the ability to think in one's thinking; it is therefore the knowledge of one's cognitive processes and divided metacognitive thinking processes into three interrelated variables: individual, task, and strategy (Flavell, 1979). On the other hand, Pedone, Semerari, Riccardi, Procacci, Nicolò, & Carcione (2017) conceptualized metacognitive thinking processes as higher-order control processes aiming at planning, monitoring, and evaluation of one's performance while solving a problem. The function is guiding and managing one's thinking.

Schraw& Dennison (1994) defined metacognitive as one's awareness of his/her learning and the ability to set plans to achieve specific goals and select the most appropriate strategy to accomplish the goal, and the ability to review and reevaluate one's thinking continuously. Oneil & Abedi (1996) stressed the procedural component of metacognition viewing metacognitive thinking as the process in which individuals think in their thinking of developing effective learning strategies and solving problems including planning, self-monitoring, and awareness with the cognitive strategy used. Abdalqader (2012).Defined metacognition as the thinking of learners in their thinking and ability to employ learning strategies to solve certain problems. Jarwan (2007) referred to metacognitive thinking as intricate high-order mental skills used in data processing, and control different thinking activities directed at solving a problem and employ one's cognitive capabilities effectively in the thinking process (Alahmmady, 2012). Metacognitive thinking is thinking in one's thinking to become able to control self-thoughts and rebuilding them to contribute to learning and problem-solving. (Even, 2017). A glance at the earlier definitions one can notice that the various definitions of metacognitive thinking are revolving around the individual's ability to think its thinking, and the ability to direct, manage, control, and evaluate his thinking using the cognitive skills more effectively (Berizzi, Barbora &Vulcani, 2017). As noticed, there is educational importance of employing metacognitive thinking skills at the higher education institutions and the universities, as they provide a learning environment that motivates creative thinking, and develop problem-solving strategies among learners, which will reflect positively on the acceptance of the instructional content, not specifically for memorization of facts and information to retrieve in the examinations, but to practice mental exercises that increases mental joy and reflects on learner's thinking by increasing attention and interest and employ the learning in similar instructional situations (Bruckermanna, Aschermannb, Bresgesc & Schlüter, 2017; Aboulatifa, 2015; Qarareh & Hajeh, 2013). The selection of metacognitive thinking skills to solve problems has a far-reaching effect on student learning and thinking of obtaining feedback during every step of the learning process, thereby strengthening strengths and avoids weaknesses (Alahmmady, 2012). The development of metacognitive thinking skills relies on training of the faculties and students on the mental processes, and various tasks that stimulate higher-order mental functions that increase awareness of learners during thinking and solving problems, and the related planning setting strategies, implementation, continual assessment, guidance provided by professors to their students with the training on how to develop plans, implement them and assessment to solve a problem (Al-Saleem, Al-Rbabaah& Al-Khawaldeh, 2012). In addition to the interest in making the classroom an attractive environment, lively and effective by employing metacognitive thinking skills, brainstorming and generating creative ideas (Sedhu, Ali, & Harun, 2017). A study by Aljarah &

Obeidat (2011) revealed a disparity in metacognitive thinking skills among college students associated with specialty studied, achievement, and year of study. However, Altimimi & Jafar (2015) argued the metacognitive skills practiced by teachers and their students were mostly centered in the planning skill domain. Essentially, metacognitive thinking skills include three major skills: planning, implementation & organization, and assessment, each of which has a set of sub-skills. The assessment focuses on the extent of accomplishing the goal, accuracy of results, appropriateness of methods used for the task, evaluation of how to overcome the difficulties and errors faced, and learner's ability to interpret decisions made, assess how effective is the implementation of the plan, retention and storage of the information for a new and similar task in the future (Jbeili, 2013; Al-Saleem, Al-Rbabaah& Al-Khawaldeh, 2012).

Blended Learning

The technological advancements taking place every day and every live field, including education, reshaped our world (Aldalalah & Fong, 2010). The teaching-learning process has largely been influenced by the fact that increased interest in teaching learners how to learn, and to create self-learners able to develop one's thinking skills by employing the modern teaching-leaning (Shatat, Aldalalah &. Ababneh, Z. 2017) Approaches including blended learning. Blended learning is a form of learning what merges electronic learning with traditional classroom teaching within one framework, and in which the electronic learning facilities that depend on the computer and the web are used in lesson delivery, and face-to-face interaction between teacher and student occurs much of the time (Cameron, 2005). Aslan (2015) referred to blended learning as a new type of learning that integrates with the typical teaching approaches in which online learning is merged with traditional leering within one framework inside the classroom or on the internet with aim of reducing the negatives of purely online learning. As a result blended learning is the learning that combines characteristics of traditional classroom learning and online learning within an integrated model that benefits from the available technologies for both methods (Milheim, 2006; Kitchenham, 2005).as an example, the university teaching that is based on blended learning represents a model combining traditional and modern teaching (Long, Vignare, Rappolds & Mallory, 2007).the earlier definitions of blended learning imply that it is the learning approach that merges features of traditional learning such as face-to-face interaction between teacher and learner to that of electronic learning like using modern technology of computers, internet, chat rooms, electronic mail, etc. To improve the instruction process. Blended learning characterizes by saving time, effort, and cost while improves achievement level, and provides an attractive instructional and training environment enabling students to interact with their teachers and classmates face-to-face, and strengthening social and human ties (Badawi, 2009). (Gulbahar & Madran, 2009) was consistent with the related literature in that four essential domains shall be taken into account when developing the blended learning environment: technology, teacher, student, and pedagogy. Similar to traditional learning, blended learning requires the organization of the content to be easily accessible, and to accomplish effective learning that links previous knowledge with the learning (Altun, Gulbahara & Madran, 2008). However, Myllymaki (2010) argues that blended learning provided unprecedented opportunities to learn by employing video clips besides face-to-face teaching in the classroom

which enhances student participation more effectively. Further, studies (Schwenger, 2017) indicated that because of its positive effects on learning, attractiveness added to the learning environments at college, blended learning will become widely used in the world (Orhan, 2008). On the other hand, Aldalalah & Gasaymeh (2014) stressed two aspects in the application of online and blended learning: first, selection of qualified learning designers and teachers, selection of appropriate blended learning strategies, emphasizing effective learning, and individual practices to enhance learning. The other aspect supports cooperative online learning groups. Abu A-Reesh (2013) revealed that blended learning can be employed in the teaching process via four methods: in the first method one or more lessons from the textbook can be delivered using normal classroom learning methods, while other lessons can be taught using online learning tools, and assessment can be accomplished by applying summative assessment whether normal or electronic. In the second method, electronic learning and classroom teaching plays interchangeable roles in delivering the same lesson. First, classroom teaching is introduced, followed by online learning, and the learning is assessed using the normal or electronic summative assessment methods. Similarly, in the third method, both classroom teaching, and online learning play interchangeable roles in delivering the same lesson, where the teaching is introduced using online learning, followed by the classroom teaching, and student learning is evaluated using whether the traditional or online summative assessment methods. Finally, the fourth method the classroom teaching and online learning play interchangeable roles to deliver the same lesson, but the rotation is made more than once for the same lesson, and student learning is evaluated using traditional or online summative assessment methods (Feras, Osamah & Ziad,2017). Blended learning can be beneficially described on a continuum where traditional (simple) learning lies at one extreme and the electronic (more intricate) learning on the other, where the new learning combines the features of both traditional and online learning, and can be separated into four distinctive levels: synthetic, integrated, participatory, expanded or distributed (Mohammad, 2017). Al-jasem (2011) emphasized critical factors for the success of blended learning, which included teacher-student communication, teamwork, and role-playing to ensure effective interaction among all participants. Blended learning encourages student self-learning, and allows for various flexible choices for learning irrespective of place, time, or previously held knowledge by students. The learning situation provided by blended learning enables a student to attend the lessons studied by his/her mates without a delay; it can be used with learners who have chronic diseases, and appropriate for fast learners by offering large size of information (Solera, Solera & Arayab, 2017). Al-ghamdi (2010) argues that for blended learning to succeed, students should be engaged in the selection of the methods most appropriate to them, and enhance continual communication among all those involved in eh teaching-learning process. The teaching, therefore, should be presented in different ways and displayed various models ranging between traditional, online learning, video-based, and other content display means.

Statement of the Problem

University students need cognitive and metacognitive thinking skills not only during their higher education years but also at the workplace because they provide them innovative skills in dealing with students and other colleagues. As a subject of research, the interest in developing methods

to enhance thinking skills among students has proliferated. However, there is a dearth of studies that address the cognitive and metacognitive skills and blended learning and learning strategy among Arab students, essentially at the ECT. The current study deals with this gap by investigating the relationship between blended learning and cognitive and metacognitive skills. As the scientific and humanistic courses at the university level largely depend on practical and applied aspects, the researchers felt the need to pay attention to a strategy that assists students to retain the knowledge that has to do with their practical skills in the disciplines they study, this strategy selected was blended learning because it requires cognitive skills pre, during and post use of the strategy. Several studies indicated earlier suggested that the optimum, use of a blended leering strategy requires active interaction. The problem addressed by the current study investigates the extent to which ECT students acquire cognitive and metacognitive thinking skills and their relationship with blended learning.

Study Questions

The present study attempts to answer the following questions:

- What are cognitive and metacognitive thinking skills should be acquired by the ECT students?
- What is the influence of blended learning on both cognitive and metacognitive thinking skills in mathematics acquired by the ECT?
- Are there statistically significant differences in the ECT students' acquisition of cognitive thinking skills in mathematics attributed to achievement level (High, Low)?
- Are there statistically significant differences in the acquisition of cognitive and metacognitive thinking skills in mathematics of low-achieving students at the ECT attributed to the teaching method (traditional, blended learning)?

Methods & Procedures

The Study Sample

For the qualitative part of the study, lecturers of (31) faculties of various academic ranks of the ECT participated in the study. The sample was selected using the simple randomization method. A purposeful sample of (95) students enrolling in the Abu Dhabi ECT during the second semester of the academic year 2017/2018 enrolled in the mathematics course (College Mathematics) participated in the quantitative part of the study as one of the researchers is a faculty member the ECT and participants were assigned to the groups using the simple randomization method. The blended learning group consist (55) students and the traditional group consists (40).

Study Variables

This study investigated the following variables:

- Independent Variable: teaching method (blended learning versus traditional learning)

- Dependent Variable: an extent of the students' acquisition of the thinking skills in mathematics, having two levels: (cognitive/ metacognitive)
- Moderator Variable: previous achievement associated with the academic grand point average GPA (high/low).

Methodology

To answer the study questions, the researchers adopted a mixed methodology of quantitative and qualitative approaches. The researchers applied the descriptive-analytical method to develop the inventory of cognitive and metacognitive skills that college students should possess based on interviews with the lecturer at the scientific and humanistic faculties at the ECT. Quantitatively, the researchers used a quasi-experiment design to identify how effective was blended learning and the effect of achievement on the acquisition of cognitive and metacognitive thinking skills in mathematics by the ECT students.

Research Framework

The Research framework in Figure 1 shows the relationships between the different variables under investigation. The research frameworks are divided into three variables:

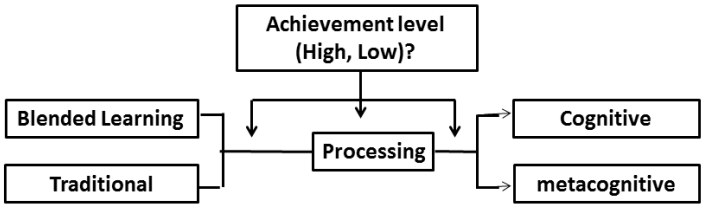

Figure 1: Research Framework

Independent variables are the 2 treatments teaching method (traditional, blended learning). The dependent variables are cognitive and metacognitive thinking skills. The moderator variables are l to achievement level (High, Low). The moderator variable is presented in this study and it gives a strong contingent effect on the independent and dependent variables' relationship. The effect of using the two treatments, treatments on learning will be identified by measuring the overall development of the Cognitive and Metacognitive Thinking Skills in Mathematics of the (ECT) Students.

Instruments

(1) Cognitive and Metacognitive Thinking Skills

To identify the cognitive and metacognitive thinking skills acquired by ECT, the researchers developed the inventory of cognitive and metacognitive thinking skills depending on their own experience, relevant literature review (Abdullah, Rahman &Hamzah, 2017; Berizzi, Barbora & Vulcani, 2017; Bruckermann, Aschermann, Bresges & Schlüter, 2017; Hamdi, & Ahmed, 2017; Sedhu, Ali, Suraini, &Harun, 2017; Evin-Gencel, 2017; AbouLatifa, 2015; Al-Timimi &Jafar,

2015; Jbeili, 2014; Qarareh &Hajeh, 2013; Al Ahmmady, 2012; Abdalqader, 2012; Al-Saleem, AL-Rbabaah & AL-khawaldeh, 2012; Al-Jarrah, Abdelnaser & Obeidat, Alaa, 2011), and interviews conducted with 21 lecturers of the ECT. The lecturer was asked what cognitive and metacognitive thinking skills college students should acquire. The inventory of cognitive thinking skills measured 5domains: the focus measured by 4 items; Collecting and remembering information measured by 4 items, Organization and analysis of information measured by 5 items, generative and installation of ideas measured by 4 items, and finally the domain of Evaluation and measured by 4 items. The instrument included an inventory of metacognitive thinking skills and covered three main domains: planning and measured by 20 items, implementation, and control and measured by 9 items, and final assessment and measured by 11 items.

(2) Pretest and posttest

The researchers reviewed the listing inventory to build the test of cognitive and metacognitive thinking skills in mathematics. The test consisted of 20-questions, the correct answer was assigned (1), and incorrect or no response was given (0). The test was applied as a pretest and posttest. Specifications of the test were tabulated, and questions were distributed as percentages on the cognitive and metacognitive domains, where the test covers the contents of the mathematics (College Mathematics) Polynomial and Rational Functions unit used for this grade. Table (1) shows the distribution of Cognitive and Metacognitive in the mathematics test.

Table 1: Specifics for Mathematics Test

Num	Lesson	%	Mark	Questions	Cognitive		Metacognitive	
					Mark	Questions	Mark	Questions
1	Polynomial function of degree greater than 2	20%	4	4	2	(4),(5)	2	(13),(17)
2	Properties of division	20%	4	4	2	(20),(9)	2	(10), (2)
3	Zeros of Polynomials	20%	4	4	2	(11),(15)	2	(3),(18)
4	Complex and rational Zeros of Polynomials	20%	4	4	2	(1),(6)	2	(12),(14)
5	Rational function	10%	2	2	1	(7),	1	(16)
6	Variation	10%	2	2	1	(8)	1	(19)
Total			20	20	10	10	10	10

The researchers, then, investigated the text on the discrimination and difficulty index, where items 0.30<and >0.80 were deleted from the pretest and posttest.

The correlation coefficient R = 0.770** (Table2) indicated a high positive relationship between the pre-test scores and the post-test scores. Table 2 shows the degree of relationship between the pretest score and post-test score. A correlation coefficient of R= 0.770** indicates a high positive relationship between the two tests.

Table 2: Correlation between Pre-test Scores and Post-test Scores

		Pre-test	Post-test
Pre-test	Pearson Correlation	1	0.770**
	Sig. (2-tailed)		0.000
	N	95	95
Post-test	Pearson Correlation	0.770**	1
	Sig. (2-tailed)	0.000	
	N	95	95
**. Correlation is significant at the 0.01 level (2-tailed).			

To reduce the statistical error, the pre-test scores were used as the covariate variable and a comparison was made among the groups.

(3) Validity

a) Face Validity

To test for face validity, the initial version of the instrument was validated by a group of judges (14) who have established knowledge and experience in the domains measured by the instrument. Opinions were elicited from the judges regarding the instrument items and domains to ensure they measure what they were designed to measure. Items were modified in terms of wording, intelligible, ordinal rank, deletion, and addition in light of the comments provided by the judges.

b) Reliability

The measure the instrument reliability, a pilot study was applied to 34 students selected from without the original sample. The researchers used the test-retest method, and the reliability coefficient using Chronbach alpha for the cognitive skills domain was (0.81), and internal consistency was (0.86). However Cronbach alpha for the metacognitive skills domain was (0.82), and the internal consistency (0.88). The reliability coefficient for the overall instrument using Cronbach alpha was (0.80) and internal consistency (0.93). As a result, the instrument was found valid for application in light of the study goals.

Procedures of the Study

The study was applied according to the following procedures:

- Obtaining the approval of the ECT principal and the lecturers who will apply the study. The researchers talked with them about the study, its objectives, and its importance to provide the necessary facilities to conduct the study.
- To identify the cognitive and metacognitive thinking skills acquired by ECT, the researchers developed the inventory of cognitive and metacognitive thinking skills

depending on their own experience, relevant literature review. The researchers applied the descriptive-analytical method to develop the inventory of cognitive and metacognitive skills that college students should possess based on interviews with the lecturers at the scientific and humanistic faculties at the ECT.

- Researchers have built a test in mathematics based on cognitive and metacognitive thinking skills.
- The sample of the study was randomly selected, and they were randomly distributed to both groups.
- Training lecturers: Before the beginning of this study, the lecturers assigned to the experimental groups participated in three days of training sessions that focused on education issues in mathematics teaching. The lecturers were informed that they would be part of an experiment in which new instructional methods will be tested. They worked with the new methods and learned how to use them with their students. In the present study, the focus was on the cognitive and metacognitive thinking skills in mathematics.
- The groups of lecturers were prepared unequivocally on using blended learning in the teaching of mathematics. They were presented with how to use the computerized materials and train students to use them in their learning. The procedures and methodology of selecting groups and assigning group members were explained to the lecturers. The researchers met the lecturer for feedback and assessment regarding the application of the teaching method.
- Dividing the study sample into two groups: the experimental group (blended learning) and the control group (traditional).
- Calculating the total grades of students at the end of the first semester to divide the students into the (high and low) achievements.
- The pretest was distributed to students (blended learning group and traditional group)
- Teaching the experimental group using the blended learning material at the beginning of the second semester 2017 / 2018. Blended learning was performed in different ways since it is adaptable. However, it centers on the individuality of students' needs as well as lecturers' adequacy. The blended learning group was educated utilizing station rotation, lecturers partitioned the study hall into little gatherings; each gathering was given a particular assignment, in which they were altogether appended to the principle point of the module yet, to address understudies' issues. Understudies, by utilizing this technique, used innovation in playing out the errands. Then again, the Whole Group Rotation strategy enabled understudies to perform one undertaking at any given moment overall gathering. And Flipped Classroom utilized in educating students appeared planned materials for example videos, power point presentation or texts, and pictures, they were approached to give certain reactions or perform assignments relying upon the material given to them, the reactions were conveyed utilizing the web.
- Teaching the traditional group was done through the ordinary instructive material (textbook, whiteboards) utilizing the conventional technique. This depended on the

lecturers' endeavors and efforts to convey the data expected to the students. The main assets utilized were the lecturer's book, the student's book, and the workbook. Any additional exercises instructors utilized likewise relied upon the activities given toward the finish of every unit.

- After the completion of the teaching process for the experimental and control groups, students' post-test was distributed to students (blended learning group and traditional group) total scores were calculated to find out the effect of blended learning in comparison with the traditional method.
- Analyzing the results and concluding in light of the questions of the study.

Group's Equivalence:

The purpose of the pre-experimental study was to test the assumption that the participants across the groups were equivalent of cognitive thinking skills and metacognitive thinking skills in math for the ECT students. To achieve this purpose, a pre-test that measures before the beginning of the study. To examine the equality between groups (Blended Learning & Traditional) and (low & High) achievement, the ANOVA procedure was used results have been shown that there is no significant difference in the pre-test scores in (Blended Learning & Traditional) groups and (low &High) achievement groups. This means that the groups have the same level of prior knowledge of cognitive thinking skills and metacognitive thinking skills for the ECT students.

General Results and Discussion

Results Related to the first Question: *What is the cognitive and metacognitive thinking skills that should be acquired by ECT students?*

To answer the research questions: the researchers have followed the following: based on the literature review of the trends in cognitive thinking skills and metacognitive thinking skills, and previous experience of the researchers, the researchers developed the list of thinking skills. After determining the list of standards in this research (Arabic version) the validity of the list of thinking skills consisted of a review panel of several. To express their views on the clarity of the wording of each thinking skill and scientific validity, and the adequacy of thinking skills and items, and relevance of items thinking skills belonging to it, and add, delete or modify the thinking skills and items as they see fit.

The thinking skills list was evaluated during the development of the research study. The feedback and comments received from the panel of experts were employed to establish the necessary clarifications, changes, and modifications. Meanwhile, the research thinking skills list items were translated by two bilingual experts who reviewed both the English and Arabic versions. The Arabic version of the thinking skills list was checked and translated back into English by an independent translator to ensure there was no loss of meaning during the translation. The purpose of translating the thinking skills list from the English version into the Arabic version is to make it easier for participants to answer the questions.

To ensure that the translation of the thinking skills list is accurate, the list was professionally translated from the survey to ensure the validity of the thinking skills list. To answer the study question the researchers collected the opinions of experts and compare responses to see the degree of agreement, the results showed a high degree of agreement between the experts as shown in table 3 and table 4

Table 3: The cognitive thinking skills list

The focus
Identify the problem
Identify the main objective to be achieved
Select the sub-goals
The ability to observe
Collecting and remembering information
Take notes and arrange them
Ask questions to collect more information
The ability to access information and previous experiences
Ability to store information in long-term memory
Organization and analysis of information
The possibility of comparison between things
The ability to categorize objects in groups
The ability to arrange things
Determine the characteristics and components that distinguish between objects
Identify patterns and relationships between objects
Production and installation of ideas
The ability to things and conclusion of the information
The ability of prediction
Develop available ideas and information to reach new results
Ability to summarize the findings and information in an efficient way
Evaluation
Determine the criteria that achieve the goal
Ability to validate results
Identify the errors that affected by the results
Accuracy in the results

Table 4: The Metacognitive Thinking Skills List							
No	**Planning**	11	Develop learner methods, methods, and strategies necessary to implement the goal	1	Organizing the learner for his ideas before performing the task	2	The ability of the learner to determine the extent to which the main objective has been achieved accurately
1	Read the learning for the problem	12	Learner selection of new methods, methods, and strategies required to implement the goal	2	the learner's conviction and confidence in his ability to implement the plan	3	To judge the accuracy of the results and the possibility of benefiting from them.
2	The ability to conceptualize the problem	13	Generate learner's internal questions on the subject	3	Focus the learner on the goal to be achieved.	4	How effective and suitable methods, methods, and strategies are used
3	Understanding the learner of the problem	14	The learner's formation of conceptual maps.	4	The steps and processes of the solution proceed logically.	5	The effectiveness of the methods, methods, and strategies used to overcome the emergency difficulties.
4	Determine the nature and aspects of the problem	15	The learner develops a logical sequence of steps to solve the problem achieving the goal.	5	Go to the next step after you finish the previous step successfully	6	The overall effectiveness of the plan
5	Identify the main goal to be achieved (formulation of the problem)	16	To conceive obstacles and difficulties that can occur.	6	Evaluate the success of each sub-task before moving beyond.	7	Determine whether the plan can be used to resolve similar and similar problems in the future.
6	Analyze the problem for simple parts setting sub-targets	17	Develop proposed methods and strategies to overcome obstacles and difficulties that can occur.	7	The focus of the learner is on the time of achieving the sub-goals.	8	Determining the learner's retention and utilization of results and solutions for the future.
7	Identify the learner of previous experiences associated with the problem	18	Predicting the Learner of the results to be obtained	8	Determine the learner of the difficulties and errors encountered in the implementation.	9	Results are the same as expected.
8	Learner gather information about the problem	19	The learner's assessment of the plan's progress, effectiveness, and applicability.	9	Use proposed methods to overcome difficulties in a manner that does not affect the results.	10	The extent of innovation and creativity in the solution.
9	Learner gathers information about the problem.	20	Identify materials and tools for implementation		**Evaluation**	11	The flexibility and sequence of the solution steps in the plan.
10	The learner's awareness of the methods and strategies he used in a similar problem	No	**Organization and implementation**	1	The ability of the learner to self-assess its results.	12	

Results Related to the Second Question: *What is the influence of blended learning on both cognitive and metacognitive thinking skills in mathematics acquired by the ECT*?

A comparison was made between Traditional and Blended learning instruction based upon the mean of the post-test scores.

Table 5: Descriptive of the Posttest Score of students in Various Treatment Groups

	Mode	Mean	Std. Deviation	N
Post test scores of Cognitive Thinking Skills	Traditional	13.5000	2.26455	40
	Blended	15.9636	2.43405	55
	Total	14.9263	2.65074	95
Post test scores of metacognitive Thinking Skills	Traditional	13.2500	2.45733	40
	Blended	15.8000	2.39134	55
	Total	14.7263	2.71889	95

(Table 5) showed a difference between the mean of post-test scores of Cognitive and metacognitive thinking skills for groups using the Blended learning.

To reduce the statistical error, the pre- test scores were used as the covariate variable and a comparison was made between the groups (Traditional & Blended learning) using the MANCOVA procedure (Table 6).

Table 6: MANCOVA of the Posttest Score of students in Various Treatment Groups

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	PostC	162.380(a)	3	54.127	9.889	.000
	PostM	165.998(b)	3	55.333	9.521	.000
Intercept	PostC	1463.381	1	1463.381	267.349	.000
	PostM	1474.067	1	1474.067	253.628	.000
PreC	PostC	.298	1	.298	.055	.816
	PostM	.483	1	.483	.083	.774
PreM	PostC	14.304	1	14.304	2.613	.109
	PostM	10.973	1	10.973	1.888	.173
Mode	PostC	136.035	1	136.035	24.853	.000
	PostM	146.741	1	146.741	25.248	.000
Error	PostC	498.104	91	5.474		
	PostM	528.886	91	5.812		
Total	PostC	21826.000	95			
	PostM	21297.000	95			
Corrected Total	PostC	660.484	94			
	PostM	694.884	94			

a R Squared = .246 (Adjusted R Squared = .221)
b R Squared = .239 (Adjusted R Squared = .214)

Table 6 indicated that there were significant differences between Traditional and Blended learning groups in the mean score of the post- test scores with F (1.91) = 24.853, Mean Square = 136.035and p = 0.000. of post-test scores of cognitive thinking skills. And F (1.91) = 25.248, Mean Square = 146.741 and p = 0.000. of post-test scores of metacognitive thinking skills.

Results showed that the experimental group students who were exposed to blended learning outperformed their counterparts in the control group who were exposed to traditional teaching.

To account for this result, the researchers argue that delivering the teaching content by integrating technology with the normal environment will produce learning outcomes greater than the traditional method that employs only the textbook and the board, which facilitates learning. Considering this result, the researchers emphasize that to be effective, blended learning should be meaningfully diversified in terms of activities, means, research methods, assessment,…etc which enhances the positive role of the student as the hub of the teaching-learning process, and develop the cognitive and metacognitive concepts that strengthen the links between theory and practice. Students when they use Blended learning in mathematics it makes them acquire cognitive skills, like identify the main objective in the problem solving to be achieved and they can observe, because Blended Learning is effective and it employs technology in delivering content, which is a new learning environment for most students, and rich with attractive stimuli. This result can be also explained by the structure of a blended learning environment that provides a straightforward track of learning which starts with a review of learning outcomes, learning content, activities, practices, using the multimedia flipped learning in lesson delivery, and ends with the evaluation questions to assess responses, and receive instant feedback from the teacher. This process combines both the normal and electronic environments, noting that teachers in traditional learning might disregard the instant feedback, but in blended learning, the teacher provides students with instant, varied and continual feedback to enhance their learning. For example, students have good skills to categorize and arrange solutions in patterns and identify the relationships between real numbers and complex zeros, in the section of complex and rational zeros of polynomials. Blended learning also appropriates individuation because it responses to individual differences by shortcutting differences into time gaps, thereby a student will learn at his/her own pace without the need to wait for classmates. On the other hand, blended learning has provided a valuable opportunity to break the isolation of students because of time and place. Students, therefore, have access to teaching content provided over learning platforms on the internet, at the places most suitable to them, they can access international libraries, browsing the online library archives, and review references that support their learning, thereby enriching the cognitive repertoire students have which can be employed in face-to-face discussions in the classroom. Blended learning employs multimedia and technology-mediated teaching, such as hypertext, colors, images, animations, graphs, audio-video clips, all of which stimulates the student senses, and paying attention to the instructional content, especially that using two senses is much better than using one sense to acquire the experiences. In other meaning, it helps the students to predict and develop available ideas to reach new results in the zero of polynomials section, in the mathematics unit.

This result can also be explained by the fact that teaching using blended learning in comparison with traditional learning provokes enthusiasm in learners, and attract the attention of learners to participate actively, not only as passive recipients of the information. With blended learning, students learn at their own pace, correct their mistakes by themselves, and discuss their teachers via the online platform or face-to-face without being embarrassed by classmates. Especially, the

rational functions and various sections in the mathematics unit, students organize their ideas before performing the task and focus on the solution to achieve. On the other hand they utilization of results for the variation section, and judge the accuracy of these results.

In addition, the blended learning strategy allows learners to browse the instructional content, review the material more often without feeling bored, and the time most convenient to them. Doing activities and exercises designed under a blended learning strategy to help students acquire the concepts and skills since students work on the activities after receiving training on the skills and receives instant feedback, which improves performance and finally reflects positively on the whole achievement, and helps student concentrate on active learning by repetition of the stimulants and responses arranged for in the program. Students develop methods and strategies to implement the results because they have many practices, exercises, and examples in the mathematics unit by using Blended Learning.

Furthermore, the researchers attribute this result to several factors including the role of IT technology (computer technology) in education and creating interactive learning environments. The research support that computer-based language learning (verbal and writing) remains in memory longer than the content delivered traditionally.

Results Related to the Third Question: *Are there statistically significant differences in the ECT students' acquisition of cognitive thinking skills in mathematics attributed to achievement level (High, Low)?*

A comparison was made between the two groups – students with a low level of achievement, and students with a high level of achievement based upon the mean of the post-test score using the descriptive procedure (Table 7)

Table 7: Descriptive Of Post-Test Scores Of Students With Different Levels Of Achievement (High, Low)

	Achievement	Mean	Std. Deviation	N
Post C	Low	13.4634	2.15752	41
	High	16.0370	2.45690	54
	Total	14.9263	2.65074	95
Post M	Low	13.0488	2.25778	41
	High	16.0000	2.33109	54
	Total	14.7263	2.71889	95

Table 7, showed a difference between the mean of post-test scores of Cognitive and metacognitive thinking skills for high achievement students groups. To reduce the statistical error, the pre- test scores were used as the covariate variable and a comparison was made between the groups (high achievement & low achievement) using the MANCOVA procedure (Table 8).

Table 8: MANCOVA Of The Post-Test Scores Of Students With Different Levels Of Achievement (High, Low)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	PostC	181.585(a)	3	60.528	11.502	.000
	PostM	223.185(b)	3	74.395	14.352	.000
Intercept	PostC	1406.964	1	1406.964	267.350	.000
	PostM	1413.259	1	1413.259	272.645	.000
PreC	PostC	.062	1	.062	.012	.914
	PostM	.000	1	.000	.000	.994
PreM	PostC	13.477	1	13.477	2.561	.113
	PostM	11.051	1	11.051	2.132	.148
Achievement	PostC	155.240	1	155.240	29.499	.000
	PostM	203.927	1	203.927	39.341	.000
Error	PostC	478.899	91	5.263		
	PostM	471.700	91	5.184		
Total	PostC	21826.000	95			
	PostM	21297.000	95			
Corrected Total	PostC	660.484	94			
	PostM	694.884	94			

a R Squared = .275 (Adjusted R Squared = .251)
b R Squared = .321 (Adjusted R Squared = .299)

Table 8 indicated that there were significant differences between high achievement & low achievement groups in the mean score of the post-test scores with F (1.91) = 24.853, Mean Square = 155.240, and p = 0.000. of post-test scores of cognitive thinking skills. And F (1.91) = 39.341, Mean Square = 203.927and p = 0.000. of post-test scores of metacognitive thinking skills.

Results show that high-achieving students outperformed low-achieving students. Generally, the achievement of students associates with their attitudes. High-achieving students do usually do their best to maintain their placement because they typically enjoy a high level of motivation to achieve, their sense of responsibility is high, greater in self-estimation, and willingness to excel. In case their achievement went down, they will have a negative self-image, which motivates them to work harder towards achievement. This leads them to sharpen their cognitive thinking skills, to duplicate their cognitive repertoire and experience, thereby they become more insightful about the goal they are seeking, and their hardworking will increase, and become more enthusiastic and engaged in the teaching-learning process.

The researchers consider this as a reasonable result, and the difference can be accounted for by the nature of the test used. The test applied included pictures and geometric shapes that high-achievers recognized the relation between pictures and shapes more easily than those low-achievers, given the high correlation between intelligence and achievement. It was clear, the metacognitive questions in the protest, students analyzed the problem, for simple parts by setting sub-solutions in the properties of division for the polynomials by using the remainder theorem or the factor theorem.

On the other hand, high-achieving students typically are challenged by new knowledge, that they become motivated to learn the cognitive learning skills that increase their cognitive repertoire and experiences. Students in their hardworking to increase their achievement tend to use every method or skill that might increase their cognitions and experiences they need in life which will reflect positively on their achievement. Further, the learners who possess the spirit of competition and challenge with their classmates are more apt to acquire the cognitive thinking skills because they save time and effort, and help retain the information learned longer in mathematics sections, and increases motivation and curiosity among learners for exploration.

In addition, this result can be accounted for by the observation that high-achieving students are self-learners, and most consider their success as a result of personal hard work, that they tend to acquire the cognitions and experiences that support their learning. As thinking skills increase student achievement, they become internally motivated to learn and collect more information about the polynomials and rational functions to store it in long-term memory. In general, students wish to be more self-confident and achieve high, which increases creativity and problem-solving skills which in turn improves their motivation to learn. High-achieving students usually set high goals to achieve and consider the previous success as predictors of their high aptitudes. Failure, on the other hand, is viewed as a challenge that they must defeat, which makes students exert greater efforts, and attribute their success or failure to internal factors that motivate them to acquire the thinking skills to sustain their excelled rank.

Results Related to the Fourth Question: *Are there statistically significant differences in the acquisition of cognitive and metacognitive thinking skills in mathematics of low-achieving students at the ECT attributed to the teaching method (traditional, blended learning*)?

From table 8, it can be seen the post-test score of cognitive thinking skills for low achievement students using blended learning mean (M = 14.2609) is higher than the post-test score of cognitive thinking skills for low achievement students using traditional mean (M = 12.4444). The mean post-test score of metacognitive thinking skills for low achievement students using blended learning (M = 14.1739) is higher than the mean post-test score for low achievement students using traditional (M = 11.6111).

Table 9: Descriptive of Post Test Scores of Low Achievement Students in Various Treatment Groups

	Mode	Mean	Std. Deviation	N
PostC	Traditional	12.4444	2.63957	18
	Blended	14.2609	1.25109	23
	Total	13.4634	2.15752	41
PostM	Traditional	11.6111	2.35494	18
	Blended	14.1739	1.40299	23
	Total	13.0488	2.25778	41

To reduce the statistical error, the pre- test scores were used as the covariate variable and a comparison was made between the groups (blended learning &traditional) for low achievement students using the MANCOVA procedure (Table 10).

Table 10: MANCOVA Descriptive Of Post Test Scores of Low Achievement Students in Various Treatment Groups

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	PostC	62.283(a)	3	20.761	6.199	.002
	PostM	85.467(b)	3	28.489	8.900	.000
Intercept	PostC	783.854	1	783.854	234.059	.000
	PostM	777.904	1	777.904	243.022	.000
PreC	PostC	2.601	1	2.601	.777	.384
	PostM	2.935	1	2.935	.917	.344
PreM	PostC	19.114	1	19.114	5.708	.022
	PostM	14.342	1	14.342	4.480	.041
Mode	PostC	24.010	1	24.010	7.169	.011
	PostM	55.184	1	55.184	17.240	.000
Error	PostC	123.912	37	3.349		
	PostM	118.436	37	3.201		
Total	PostC	7618.000	41			
	PostM	7185.000	41			
Corrected Total	PostC	186.195	40			
	PostM	203.902	40			

a R Squared = .335 (Adjusted R Squared = .281)
b R Squared = .419 (Adjusted R Squared = .372)

Table 10 indicated that there were significant differences between (blended learning &traditional) groups for achievement students in the mean score of the post- test scores with F (1.37) = 7.169, Mean Square = 24.010and p = 0.011. of post-test scores of cognitive thinking skills. And F (1.37) = 17.240, Mean Square = 55.184 and p = 0.000. of post-test scores of metacognitive thinking skills.

The result that the achievement of low-achieving students on the posttest was influenced by the blended learning strategy can be attributed to the documented effectiveness of blended learning in supporting student interaction, providing quality instructional material for students with low achievement, creates a motivating learning environment where students feel safe, and provides an interactive environment that provides the content clearly via various applications that allows expression of opinions, and active participation in the classroom discussions, especially, when they use this application to sketch the graphs of a polynomial function of degree 2 or more and to find their zeros. While enhancing student-student, and teacher-student social relations, and further, blended learning is sufficiently flexible to meet the needs of different learners, by their academic achievement levels, time, and learning pace, thereby achieving greater comprehension for learners greater than in traditional learning.

This result can be attributed to the multimedia technology employed in blended learning. The employment of hypertext, animation, audio-video clips stirs the five senses of learners to become alert to the content delivered thereby retention of the educational experiences longer, the possibility of word processing and make modifications, repetition of practices and exercises more than once, and replay of audio-video clips. In addition, blended learning provides an external incentive for learners to summarize the content with the assistance of the electronic files

furnished by the teacher, which can be restructured, reformatted, change color, to enhance the stimuli-response effect, and effectively assimilate the teaching content. On the other hand, blended learning saves time and effort for learners by using audio-video clips that provide digest lectures, graphical figures, and animations, which can be delivered remotely, and easily accessible by online learners to understand the problem and gather information about the problem like, estimating the real zeros of a polynomial, or estimating the coordinates of the turning points on the graph. Most learners know the steps and processes of the solution proceed of an inequality graphically. Besides that they acquired an ability to imagine from our life problems, for an instance, constructing a box, deflections of diving boards, determining temperatures, Medicare recipients, dimensions of a capsule,...etc.

Additionally, blended learning provides a continuous and direct enhancement for learners through the instructional software programs contrary to traditional learning, thereby creating a sort of challenge for learners and self-satisfaction. The assessment in blended learning is varied, including self-summative assessment, where learners receive the feedback in privacy and saves the teacher's time and effort in preparing, applying, and checking the exam sheets. Additionally, assessment in blended learning mitigates learner's test anxiety, reduces frustration, and increases positive feelings due to the motivating educational climate that employs multimedia that supports student feeling of achievement, independence, and trust in achieving the personal targets from the learning. Further, the assessment in blended learning reduces feelings of shame and frustration since it proves self-paced learning and privacy without being exposed to disappointing negative situations, as the learners learn themselves independently and positively while they seek towards specific goals. Another advantage is that blended learning encourages student active participation and exerts every effort by employing multimedia and technology-mediated instruction that supports training, practice, and problem solving through presenting the examples and exercises that relate with the content. As blended learning considerate individual differences, students start to explore individually and learn at their own pace that they regulate the learning time when to expose to learning, how often, they become responsible for their learning. Individual differences are met in the instructional material displayed such as notes, exercises, examples, assessments, video clips, and the enriching website links through which students can access directly, where students search for instructional topics on the Internet from among a wide range of available options thereby saving time and effort which finally will affect student achievement because it forms an external incentive. Blended learning, further, provides students with the lessons they missed in the traditional learning; and presents an opportunity for engagement in the instructional content because of the learning environment it creates, which is free from distractors of the traditional method, which forms another external incentive for learning. Student-teacher communication can be enhanced via email messages more easily than in the traditional method, where a learner can send a question and receive the answer faster than in the traditional method since most students have access to the internet most of the time using their laptops or androids. Finally, this result can be attributed to the fact the blended learning approach offers teachers greater opportunity to keep track with student work, especially students with poor performance, and can improve the achievement of poor students since this approach allows for teacher-learner interaction and engagement with the computer-based instructional material which leads to greater comprehension of the content and increase of achievement.

Recommendation and Implication for Future Research

The use of blended learning has positive effects on the student's metacognitive thinking skills in math such that, planning, organization, and evaluation. Blended learning has also shown an effective role in developing the low achievement students to acquire cognitive and metacognitive thinking skills in math. Therefore should be more attention given to cognitive and metacognitive thinking skills in an academic environment to upgrade students' skills in various specialties. The blended learning should be applied to different samples and subjects, and focus on the training of teachers and students in this type of teaching method**.** That review of the trends in cognitive thinking skills such that collecting, organizing, analyzing the data or information, and evaluating for identifying the errors that are affected by results helps to develop teaching strategies. This study used cognitive and meta-cognitive skills as dependent variables; future research suggests other variables, such as cognitive pattern, learning pattern, student ability, intelligence level, and ability. The need to implement the integration strategy between the use of blended learning and the thinking skills of cognitive and metacognitive when teaching students the skills of math. The researcher recommends educators pay more attention to developing Metacognitive skills, holding workshops for teachers to train them on using these skills before they start to work and in-service to enable them to use these skills in teaching. This training can provide a learning environment that can enable them to practice these skills. The author recommends educators design imitation programs to develop the lacking skills in light of the students' needs, the requirements of society, and the challenges of today. More research needs to be done into the effectiveness of using blended learning in achieving better learning outcomes in various educational programs and courses.

Summary and Conclusions

This study found that the use of blended learning helped students performed significantly better in cognitive and metacognitive thinking skills. It gives support to the effect of blended learning of thinking skills. In other words, the High achievement students performed significantly better in cognitive and metacognitive thinking skills than low achievement students. In short, the study strongly indicated that blended learning was effective in promoting better learning of mathematics cognitive and metacognitive thinking skills. Such that, identify the main ideas, ask questions to collect more data, an ability to arrange patterns and find the relationships between objects in math subjects. It is suggested that blended learning should be integrated into all courseware on the learning of mathematics. Blended learning should be considered in the instructional designer of preparing multimedia mathematics learning courseware for the “disadvantaged- aptitude” students, that is low achievement level students. In general, all the students responded favorably to the development of the cognitive and metacognitive thinking skills in mathematics using courseware-based blended learning. Mathematics learning facilitated blended learning improves cognitive and metacognitive skills of high students. Inquiry through blended learning is made easier with the help of offline and online modules that have been developed by the lecturer. Flipped learning and online communication make it easier for students to discuss and communicate with lecturers, which helped them to solve any problem they may encounter.

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Classroom-based Debate as a Teaching Strategy: Learnings in Philosophy subject among B.S. Tourism students

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ABSTRACT

The study determined the learnings of the students participating in a classroom-based debate in the subject of Philosophy. The researchers of this study employed a quantitative-qualitative research design. The respondents were eighty-three (83) fourth-year college students who were currently enrolled at the College of Business taking up Bachelor of Science in Tourism (BST). The results revealed that: (1) the respondents agreed that classroom-based debate was an opportunity to learn more in the Philosophy subject; (2) the respondents confirmed that classroom-based debate was an enjoyable strategy through their interaction with each other as the activity occurred (3) the respondents shared that engaging in this activity, they learned: the value of patience, standing or fighting for their beliefs, improved their self-confidence, teamwork, cooperation, substantial information, trust, self-preparation, critical thinking logical reasoning, listen carefully, and team-effort. Furthermore, the respondents shared that through the classroom-based debate, they learned to: organize their thoughts, respect others' opinions, decisions, and principles. They also learned to think fast and handle their emotions, learned to be attentive, and stand for what is right and just.

Keywords: classroom-based debate, learning, BS Tourism Students, and Philosophy subject

Introduction

The quality of education depends on several factors such as training of the teachers and the teachers themselves (Tolentino & Bajet, and Redoblo, 2015). The teacher is the most important factor in the successful teaching and performance of the students. The researchers underscored that the teaching process and learning strategy influenced the teacher's very high level of teaching behavior.

The teachers should see that the students who come to the classroom have different sets of developed intelligence. With this perspective of teaching, teachers should have varying strategies and styles to attract the interest of the students. Teachers should show their ability to assist in understanding the subject and help them discover their potentials. They should prepare student-centered activities that cater to the uniqueness and diversities of students to lead them to think critically and creatively relate to the classroom instructions towards the attainment of their tasks, experiences, and learnings. With this premise, the researchers believed that debate as a teaching strategy can be a tool to achieve the maximum learning potential of the students.

Debate according to studies of Goodwin (2003), Hajhashemi (2012), Seto & Hicks, (2016) is an activity that develops public speaking skills, critical thinking, research, and teamwork skills. It provides a pedagogical structure for the oral component of curricula and gives the opportunity to point out issues, resolve issues, and articulate points of view. In teaching, a debate is an activity to enhance discipline and foster divergent perspectives in the course/topics. Teaching experiences, as well as empirical research outputs, affirm that debate helps students develop content mastery, as well as argumentation and communication skills. This requires the students to contribute and bring forward the different views towards rational arguments, and force the students to know what they are talking about. It teaches them not to be narrow-minded and hear things out but to read, research, and reason out logically and rationally. In connection with this, a debate is used by the teachers to unveil how the strategy is utilized to determine the students' learnings and enhanced these capabilities towards the attainment of educational goals, thus developing them to become well-rounded, open-minded, critically-minded professionals in their different fields of work.

Hajhashemi (2012) stressed that activities towards the learning of students could help the teachers connect both teaching strategy and students' talents and capabilities. Such activities also provide the students with the best instructional strategy. Learning activities like debate, role-playing, simulation, and others increase the interest of the students in changing the focus from a teacher-centered classroom to a learner-centered classroom. It is also the stage of shifting from the product-oriented to the process-oriented of learning. In this regard, the learners are considered active participants. The effects of teaching are partly dependent on what they know such as prior knowledge, what they think about during the learning, and their active cognitive processing. The learning strategies that an individual learner applies during the learning process

and how the learner processes, new information can have an impact on their learning. In teaching, the learning strategies are important towards behaviors or actions which the learners use to achieve successful learning. Self-directed and enjoyable classroom activities and procedures give more exposure to students and thus maximize their learning. Thus, this research was conceived to determine the role of classroom-based debate towards self-directed learning and as an enjoyable classroom activity.

Statement of the Problem

This study determined the learnings of the BS Tourism students in Philosophy through the use of classroom-based debate towards self-directed learning among BS Tourism students at JBLFMU-Molo.

(1) What is the learning in Philosophy through the use of classroom-based debate among BS Tourism students at BJLFMU-Molo as an entire group and when they were grouped according to section?
(2) Is there a significant relationship in learning Philosophy through the use of classroom-based debate among BS Tourism students at BJLFMU-Molo when they were grouped according to section?
(3) What are the BST students' learnings in the use of CBD as a teaching strategy in their learning of Philosophy?

The hypothesis of the Study

The hypothesis of the present study was stated below:
Hypothesis: There is no significant relationship in the learning of Philosophy through the use of classroom-based debate among BS Tourism students at BJLFMU-Molo when they were grouped according to section.

Conceptual Framework

To understand the present study, the conceptual framework is presented below showing the relationship of Classroom-Based Debate as influenced by student-related factors such as section.

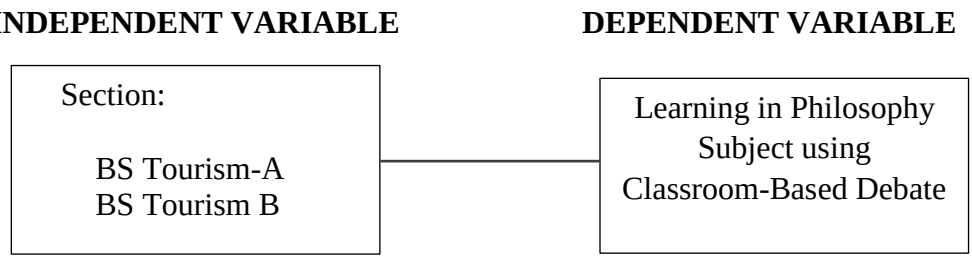

Figure 1: Learning in Philosophy subject using classroom-based debate as influenced by section.

Significance of the Study

The ability to effectively negotiate with other people is an important skill regardless of any situation. The researchers believe that teachers can explore some possibilities to make teaching and learning more enjoyable and exciting to make students more empowered to communicate effectively.

Teachers, students, and other practitioners will see the need to explore strategies in teaching content areas and how students take an active role in developing and exploring their thought processes and develop rational and logical ideas in various issues that may relevant to them.

The debate as a Teaching Strategy

The teaching and learning process has evolved through the years. Most often, strategies that engage students' higher-order thinking skills are encouraged. The use of debate is believed to promote critical thinking skills among the students. Given this strategy, teachers can provide students the opportunity to take responsibility for their learning. Debates, according to Snider & Schnurer (2002), foster students' active learning by giving them the responsibility to understand course content to transform their perspective from passive to active. Debates are defined in several ways. Debates can also be forms of competition or a challenge between two opposing teams. The debate can also be a potential strategy to motivate learners and provide them a chance to present facts logically and systematically.

As an educational strategy, debate fosters clinical reasoning and thinking skills as well as a heightened awareness of attitudes, values, and beliefs. With this, students' critical thinking processes are improved because they are given the chance to analyze, evaluate, and make informed decisions and also propose logical solutions to issues given to them. As a strategy, a debate is different from lectures where students are passive absorbers of knowledge. This strategy likewise exposes students to take an issue from two differing viewpoints. The structure of the debate includes the affirmative and the negative sides, which predisposes the discussion into two opposing positions on a particular subject. In class, debates cultivate the engagement of students, giving them the responsibility to critically examine issues and defend their side using evidenced-based arguments.

Research Method

The researchers utilized the classroom-based debate as a teaching strategy to the BS Tourism students of JBLFMU-Molo during the current semester. The structure of the debate was taught first so that the students will be familiar with the procedures done. The BST students were divided into two groups, Sections A and Section B.

Within the group, the students were divided into two groups with about 10-12 students. They each worked on a debating topic on the subject philosophy provided by the teacher. They had to organize themselves as debaters, researchers, and strategists who would plan the right strategy to approach the topic of the debate. Then, the debate was conducted in the different classes of the researchers. After which, the questionnaire was administered after the debate sessions when the students gathered at a particular venue. The objective of this research was explained to them specifically on the learnings they get in the use of CBD. They were requested to give honest answers. There were five (5) questions asking them about their learnings in Philosophy. There were three (3) open-ended questions to let them explain the kind of learnings they get from the use of CBD.

The statistical tools used in determining the respondents' responses were the mean and the standard deviation. To generate their learnings, their responses to the open-ended questions were transcribed and coded for similarities. In a way, the researchers resorted to qualitative inquiry aside from surveys. Qualitative inquiry is a method that can be insightfully used to explore people's motivations, values systems, histories, and, from their perspectives, explanations of causality in their lives (Maxwell, 2013; Saldaňa, 2015). It is a cyclical process, this process allows researchers to enable to recount the past while moving forward. This is retrieving the past to put present conditions into context and plan for future endeavors.

Qualitative data is extremely varied. It includes any information that can be captured that is not numerical. In this investigation, narrative descriptions and interviews were utilized. This included individual interviews (e.g., one-on-one). The data were recorded utilizing audio recording and written notes. In this interview, the researchers requested the respondents to be open and share what they have observed and noticed. The qualitative data were the comments and remarks of the respondents regarding their learnings from the activity, which is "Classroom-Based Debate" as a teaching strategy employed by the teacher in teaching Philosophy.

Data-Gathering Instrument

The data-gathering instrument was a questionnaire to determine the BS Tourism students' learning in philosophy. The questionnaire contains questions that were formulated to address the following questions to be answered by the study:

(1) What is the learning in Philosophy among BS Tourism students through the use of classroom-based debate as an entire group and when they are grouped as to section?
(2) Is there a significant relationship in learning Philosophy among BS Tourism students in the use of classroom-based debate as an entire group and when they are grouped as to section?

Then, BS Tourism students' responses to the open-ended questions were captured to further elaborate their learnings while participating in the classroom-based debate as a strategy in the subject of Philosophy. The data-gathering instrument was reviewed and evaluated by the experts

in research before the final administration to the respondents. These were then distributed by the researchers after the actual activity on the debate.

Respondents of the Study

The respondents of the present study were the eighty-three (83) fourth-year BS Tourism students who were currently enrolled at the College of Business of John B. Lacson Foundation Maritime University (JBLFMU)-Molo, Iloilo City, Philippines. They were classified according to their sections: Section BST 4-A had 44 (53%) and Section BST 4-B had 39 (47%). The distribution of respondents was shown in Table 1.

Table 1: Distribution of the Respondents

Category	F	%
A. Entire Group	83	100
B. Section		
BST 4-A	44	53
BST 4-B	39	47

To determine learning in Philosophy among BS Tourism students through the use of classroom-based debate, mean, and standard deviation was utilized. The following scale of means and their corresponding descriptions were used.

Scale	Description
3.41 – 4.00	Very High
2.81 – 3.40	High
2.21 – 2.80	Average
1.61 – 2.20	Low
1.00 - 1.60	Very Low

To determine the significant differences in the BS Tourism students' learning in Philosophy in their engagement in classroom-based debate, the researchers employed Chi-square as a statistical tool.

Results and Discussion

BST Students Learning in Philosophy using Classroom-Based Debate as a Teaching Strategy

Based on the results of the study, as an entire group, BS Tourism students' learning in Philosophy was very high with a mean of 3.42; SD = .85. Table 2 reflects the data. BS Tourism students from both sections got very high in their learning of Philosophy with the use of classroom-based debate as a strategy used in the teaching of the subject (Table 2).

Table 2: BS Tourism Students' Learning in Philosophy through the Use of Classroom-Based Debate

	Mean	N	SD	Description
A. Entire Group	3.42	83	.85	Very High
B. Section				
Section A	3.45	44	.76	Very High
Section B	3.41	39	.65	Very High

Legend: 1-1.6 - Very Low 1.61 – 2.2 - Low 2.21 – 2.8 – Average 2.81 – 3.4 – High 3.41 – 4 – Very High

Furthermore, the students were asked whether their engagement in the classroom-based debate was beneficial to them. The majority of the BS Tourism students who were in Section A indicated that their engagement in classroom-based debate as a teaching strategy in teaching the Philosophy subject was beneficial. BS Tourism students from Section B also revealed that their engagement in debate as a classroom activity helped them in learning the subject as well as boost their self-confidence.

Relationship in BST Student's Learning in Philosophy when they were grouped as to Section using Classroom-Based Debate (CBD)

Using Pearson's r coefficient of relationship, the results in Table 3 indicate that there was no significant relationship in the students' learning in philosophy in the use of classroom-based debate (CBD) when they were grouped according to section as indicated by the value of their Pearson's r coefficient of the relationship of .819 with a degree of freedom of 1. This means that the selection and/or grouping did not influence BST students' learning in the use of CBD in the teaching of the subject Philosophy. Although, both BS Tourism A and B students considered CBD as an opportunity to maximize learning in the subject of Philosophy, their learning in Philosophy in the use of CBD was not related when they were grouped as to section (Table 3).

Table 3: Relationship between BST Students' Learning in Philosophy when they Grouped as to Section

Section		Total	df	Sig
BST-A	BST-B			
44	39	83	1	.819

Learnings of the Respondents in the Use of Classroom-Based Debate as a Teaching Strategy

The respondents shared with the researchers their learnings during the Classroom-Based Debate as a teaching strategy in the teaching of Philosophy subject. The respondents from the BST 4-A shared that through this activity, they learned the "value of patience," and "to stand or fight for their beliefs." This led the students to express their feelings in their search for the truth. By presenting their beliefs and topics into the arguments, they do this with confidence and pride and this made them critical thinkers. The students also learned self-confidence, teamwork,

cooperation, substantial information, trust, self-preparation, critical thinking, logical reasoning, listening carefully, and teamwork. The studies according to Goodwin (2003), Hajhashemi (2012), and Seto and Hicks (2016) that debate is an activity to develop public speaking skills, critical thinking skills, research skills, and teamwork skills support these results. It also provides an opportunity to point out issues, resolve them, and articulate points of view. The results of this study are connected to their teaching because the debate is an activity to enhance discipline and fostering divergent perspectives in the course topics. The results affirm that debate helps students develop content mastery, as well as argumentation, and communication skills. This requires the students to contribute and bring forward the different views to form rational arguments and force the students to know what they are talking about. The students are not to be narrow-minded and hear things out but to read, research, and reason out logically, and rationally as mentioned by Tolentino and Bajet Paz (2015) and Redoblo (2015). Moreover, respondents from the BST 4-B agreed that through this classroom-based debate, they learned to "organize their thoughts," "respect others' opinions, decisions, and principles," "they learned to think fast and handle emotions," "learn to be attentive, and stand for what is right and just." Analyzing the views and learnings of the respondents from the two sections, they shared that they learned to "stand for individual's belief, stand for what is right and just" emerged as common responses. These learnings are in the same vein as the study of Hajhashemi (2012) stating that this activity could help teachers to connect both teaching strategy and students' talents and capabilities. This also provided the students with the best instructional strategy. The learning activities taken from debate could increase the interest of the students in changing the focus from a teacher-centered classroom to a learner-centered classroom. The activity in a debate is also shifting from the product-oriented to the process-oriented kind of learning. The students are considered active participants in the teaching-learning process. The effects of teaching are partly dependent on what students know such as their prior knowledge, what they think about during the learning and their active cognitive processing. This learning strategy would lead an individual to apply the learning process and how the learner processes the new information. This teaching strategy brings the learners to achieve successful learning, including self-directed, and enjoyable classroom activities.

To understand the respondents' learnings, Figure 1 shows the qualitative remarks and views derived from students' responses to the open-ended questions.

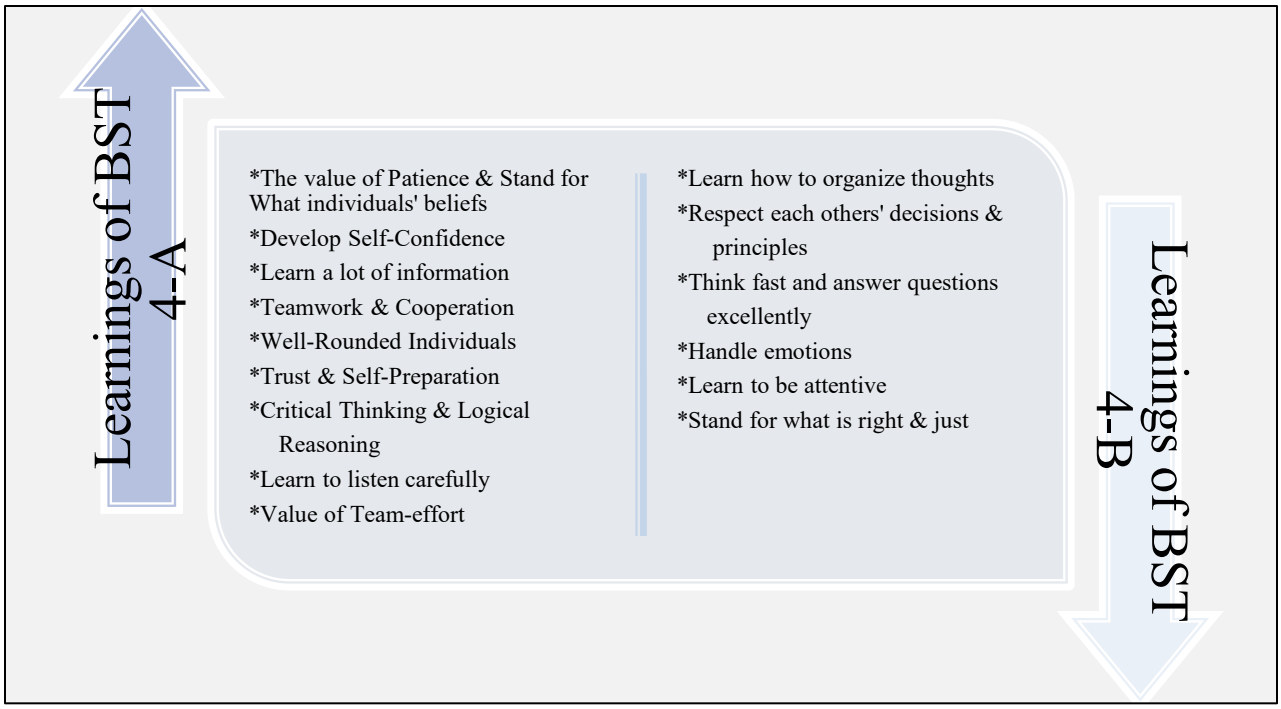

Figure 1: Learnings of the Respondents from Classroom-Based Debate as a Teaching Strategy

Conclusions

Based on the findings of the present study, the following conclusions were drawn:

(1) BS Tourism students' very high level of learning in the use of CBD as a teaching strategy in the teaching of philosophy proves that debate remains to be an effective strategy that can be used by the teachers not only those handling philosophy but other subjects as well.

(2) Grouping of students is not related to learning specifically in Philosophy.

(3) BS Tourism students shared that through classroom-based debate, they learned to "organize their thoughts," "respect others' opinions, decisions, and principles," "think fast and handle emotions," "be attentive, stand for what is right and just, " and "stand for their individual belief."

Implications of the Study

The results of the present study as indicated by the "very high level of learning in the use of CBD as a teaching strategy in the teaching of philosophy can be used as a model for an interactive teaching strategy not only in the teaching of Philosophy but should be utilized in the majority of the general and major subjects in the course of BS Tourism. It means that allowing the students to select their groupings is a manifestation of their freedom in learning in whatever type of subjects. The students' sharing and testimonies through classroom-based debate proved that learning takes place if the students are well-organized, have the freedom to express their

ideas, developed critical thinking, and have strong individual beliefs. This study can serve as baseline data for determining students' learning and instructors' initiative for making classroom activities active and innovative.

Recommendations

After analyzing the results and conclusions of this study, the researchers would like to suggest the following:

1) The administration shall encourage the instructors to be innovative and creative in dealing with their students to make the teaching and learning enjoyable and fulfilling. The subject area heads, program heads, and deans shall conduct and monitor how classes are conducted to further ensure that classroom-based activities are innovative and learning-centered.
2) Teachers shall continue to explore appropriate teaching strategies that would develop the students' holistic development. They shall engage in the training, seminars, and workshops that deal with the different styles and strategies in teaching that would lead to the students' cognitive-thinking development, logical analysis, and critical decision.
3) The researchers suggest conducting parallel studies to determine other teaching strategies coherent in their influence on the learning development of the students. Studies on teaching strategies and methods, not only using debate, but also the use of ICT among the teachers in the college. These studies will generate the overall classroom-based learning activities of the teachers in dealing with their students in the College of Business and College of Engineering at John B. Lacson Foundation Maritime University (JBLFMU)-Molo to maintain the status of the maritime university as the top in the Philippines.

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Factors Affecting Student-Teacher Relationship in a Private University of Technology in Taiwan

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ABSTRACT

Several factors may lead to students' lack of interest in the process of learning in universities. Poor interest can undermine the learning motivation of students, thereby increasing the risk of dropping out. It is essential that the tutors can receive first-hand information, and are responsible for guiding students through the college experience. Tutoring is beneficial in supporting and enhancing students' motivation and academic performance. A good relationship between students and teachers can predict social, behavioral, and academic outcomes throughout the learning period. This study analyzed data in the 'Class Tutors and Students' Relationship Questionnaire (CTSRQ)' collected by the Center of Students' Development, and Grade Point Average (GPA) records (4,782) in the Office of Academic Affairs of the case university. We carried out reliability and validity analysis of the questionnaire, basic statistical analysis, correlation, chi-squared test, ANOVA, Post-Hoc test, and regression analysis. The results showed that gender, grade, and college were significant factors affecting the student-teacher relationship in the university. The correlation analysis showed that the score of the student-teacher relationship and the GPA had a positive relation. The stepwise regression analysis indicated that male freshmen needed teacher's initiative for a higher degree of concern and communication, while juniors showed more anxieties about internship opportunities and careers. Also, the study indicated that tutors needed attributes like good communication, a higher degree of concern, understanding, and access, and willingness to help in solving students' problems. Findings in the present study may help teachers in improving class management; enhance students' learning performance and satisfaction, thus resulting in higher retention rates in the university.

Keywords: Student-teacher relationship, Classroom management, Tutor, Grade point average

Introduction

Several factors may lead to students' lack of interest in the process of learning in universities. For example, teaching materials may be too difficult or boring, teachers may be too strict, and there are fewer activities and resources offered to students. Poor interest can undermine the learning motivation of students, thereby increasing the risk of dropping out (Cheng et al., 2018). It is essential that the tutors can receive first-hand information, and are responsible for guiding students through the college experience. Tutors play an important role in caring for students at different stages of their schooling. A tutor can guide, support, teach, help, and encourage students in a class (Lauland, 1998). In addition, the teacher's attributes and personality significantly affect students' performance (Steinert, 2004; Yam and Burger, 2009). Tutoring is beneficial in supporting and enhancing students' academic performance; therefore, it is important to ensure quality tutoring in improving retention rates of students especially in the first year (Zimitat, 2006), and increasing resiliency (Baker, 2006).

The university in the present study lays special emphasis on the establishment of a sound tutoring system and the functions of a teacher. So that students can receive proper care through consultation and communication channels. In student-centric management, teachers' role is to support a comfortable atmosphere for student's expression, to model good problem-solving skills in them, and to share the responsibility for students' learning outcomes (Keiler, 2018; Moustafa et al., 2013; Yukhymenko et al., 2014). To enhance the focus on students' resources and welfare, the issue of improving the student-teacher relationship is worthy of discussion. A student-teacher relationship is one of the important factors that affect students' adjustment, learning, and career competencies. The more supportive teachers are, the more comfortable and engaged students are in the classroom (Reeve, 2006). A student-teacher relationship is particularly important for students' adaption (Arbeau, Coplan, and Weeks, 2010; Birch and Ladd, 1997; Murray and Greenberg, 2000, 2001; Pianta and Stuhlman, 2004; Silver et al., 2005). Riley (2009) stated that the adult attachment model of reciprocal caregiving and care-seeking is a more appropriate lens through which to view the teacher-student relationship. An attached relationship includes open communication, warmth, and influence. Also, it has been associated with higher participation in the class, greater engagement in school activities, and students higher academic achievements (Archambault et al., 2017; Birch and Ladd, 1997; Middleton and Midgley, 2002; Pianta, 1999; Pianta and Stuhlman, 2004; Roorda et al., 2011; Wentzel, 1998). Also, a good student-teacher relationship influences the persistence of learning in the same school. A positive student-teacher relationship can have a "pacifying" effect on students (Galand et al., 2006). It favors positive feedback and explicit consulting and teaching (Baker, 2008; Pianta, 1997). A good relationship between students and teachers could predict social, behavioral, and academic outcomes throughout the learning period.

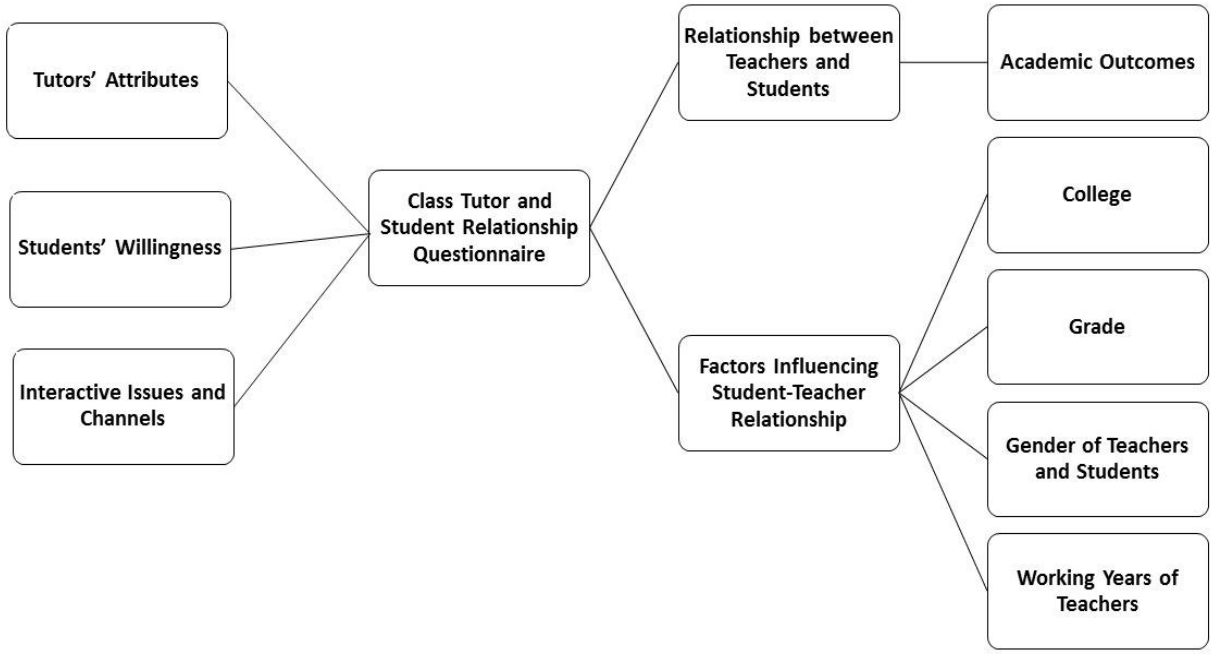

Figure 1: Research Structure

In the present study, we have analyzed data collected by the Center of Students' Development through a 'Class Tutors and Students Relationships Questionnaire' (CTSRQ) in 2018. It includes tutors' attributes, students' willingness to contact tutors, interactive issues, and channels. The main purpose of our research was: (1) to understand the relationship between teachers and students in the case of university, (2) to analyze factors influencing the student-teacher relationship and predict popular tutors' attributes, (3) to evaluate the correlation between academic outcomes and student-teacher relationship. The research structure is shown in Figure 1. The findings of the study can be of help to tutors in assessing the effectiveness of their teaching, in improving their class management, and student's performance.

Literature Review

Classroom Management

A tutor plays multiple roles to guide, support, teach, help, and encourage students in a classroom. Therefore, classroom management includes setting up an orderly and effective learning environment. It also includes actions taken to promote change in students' behaviors or measures to help students fulfill their tasks (Woolfolk and Weinstein, 2006). Also, the ways teachers interact with their students and manage their classrooms, have been verified as sources of student motivation and engagement (Midgley, 2002). Senior teachers have more experience and the ability to prioritize and distinguish tasks and to selectively deal with several important classroom matters (Hagger and McIntyre, 2000), and they know how to face complex classroom issues better than the junior teachers. They are generally able to manage and control effectively the most salient aspect of classroom unpredictability (Doyle, 1986). Therefore, their experience is very important in formulating classroom management strategies for junior teachers. Several

researchers earlier had discussed the attributes of good teachers or tutors such as affective characteristics, skills, classroom management techniques, and academic knowledge (Inan, 2014; Miller, 2012; Plavšic and Dikovic, 2016). From the Class Tutors and Students Relationships Questionnaire, the attributes of good tutors can be predicted by the design of variables.

Student-teacher Relationship

A good student-teacher relationship is needed to have a secure and satisfying relationship (Furrer and Skinner, 2003; Hughes and Chen, 2011). The supportive relationships in turn lead to improved academic behavior (Murray and Malmgren, 2005; Wentzel, 1993), reduces student's behavioral problems (Driscoll et al., 2011; Morrison and Bratton, 2010; Tsai and Cheney, 2012), and enhances successful teaching and learning (Aultman et al., 2009). A positive student-teacher relationship scores high in closeness and low in conflict and dependency, whereas a negative student-teacher relationship scores low in closeness and high in conflict and dependency (Pianta et al., 1995; Sabol and Pianta, 2012).

Regarding student's age, some researchers have suggested that teachers become less caring, less warm, less friendly, and less supportive as students get older (Feldlaufer et al., 1988; Midgley et al., 1989). However, students become more independent, and their relationships with peers become more important as they grow up (Lynch and Cicchetti, 1997). Students are more likely to see teachers as disciplinary experts who can offer career guidance and self-sufficiency (Ryan et al., 1994). Therefore, in the present research, we have tried to factor in different issues and study different variables in the student-teacher relationship. In previous studies, researchers had studied factors like gender, age, academic performance, or teaching experience to explore the correlation between teaching and learning in a classroom setting (Amenkhienan and Kogan, 2004; Goodwin and Stevens, 1993; Theresia, 2013). Therefore, in the present research, factors like gender, grade, and work experience among teachers in five colleges in the case university were studied.

Evaluations, conceptual and methodological frameworks on the student-teacher relationship have been reported (Kennedy, 2008; Sabol and Pianta, 2012). Troop-Gordon and Kopp (2011) used a regression analysis to determine which elements of the student-teacher relationship would predict students' subsequent victimization and aggression. In our research, we applied regression to figure out good personality traits in tutors in the case of university.

Methodology

Samples and Procedure

In this study, we have used data from the 'Class Tutors and Students' Relationship Questionnaire (CTSRQ)' collected by the Center of Students' Development in the University. The participants at 201 tutor classes answered the questions online from April 30 to May 31 in 2018. Data pertained to the day system in five colleges (Management, Science and Engineering, Design, Humanities, and Social Sciences, and Information). In addition, we collected 4,782 records of Grade Point Average (GPA) available in the Office of Academic Affairs of the University. Then

we carried out reliability and validity analysis of the questionnaire, basic statistical analyses, correlation, chi-squared test, ANOVA, post hoc test, and regression analysis.

Measures and Variables

The "Class Tutor and Student Relationship Questionnaire" contained the following eight items:

1. I think the tutor cares about me.
2. I think the tutor is willing to help classmates in solving problems.
3. I think the tutor will take the initiative to understand my situation.
4. I think the tutor has a good communication channel with classmates.
5. When I need it, I know how to contact the instructor.
6. When I have difficulty, I am willing to discuss with the tutor or request assistance.
7. Usually, I want to talk to the instructor about (multiple options), e.g., coursework, life-related issue, emotional issues, career planning, interpersonal relationship, family issues, and others.
8. I look forward to the ways to have a good student-teacher relationship (multiple options), e.g., class meetings, individual interviews, visits, participation in activities organized by classmates, social activities, knowledge activities, counseling classes, communication with classmates through websites, and others.

Students answered 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 tutor.

In order to predict the characteristics of reachable tutors, we applied regression analysis in the study. The independent variables were college, gender of students and tutors, grade, working years, and the scores of Q1 to Q5. The dependent variable was the score of Q6 (student's willingness). Independent variables were coded as follows: College (Management: (0,0,0); Science and Engineering: (0,1,0); Design: (1,0,0); Human and Society: (0,0,1); Information: (0,1,1)). Grade: (G1, G2) was coded as Freshman: (0,0); Sophomore: (1,0); Junior: (0,1); Senior: (1,1). Gender (student) and gender (teacher) were coded as male: 1, female: 0.

Results

Basic Statistics in Single-option Questions

Totally 4,782 students filled the questionnaire. In internal consistency adapted scales, the samples fit the population rate 1:3:1:1:1 in the five colleges: Science and Engineering, Management, Humanities, and Social Sciences, Information, and Design (shown in **Table 1**). The rate of grades from the freshman, sophomore, and junior to the senior had equal distribution. The rate of gender (male to a female) was 1:2. Therefore, the internal consistency was good. From **Table 2**, the values of the mean (Q1 to Q6) were over 4.18. It means that the student-teacher relationship was good at the University.

Reliability and Validity Analysis of the Questionnaire

Because the "Class Tutors and Students Relationship Questionnaire" was created by the Center of Students Development in the University, therefore, first we carried out the reliability and the validity of the scale. For the whole questionnaire, Cronbach's α values were found to be greater than 0.9 (**Table 3**), indicating that the internal consistency between the items was high and met the reliability requirement. Average Variance Extraction (AVE) values, representative of the percentage values of the observed variables were measured by the latent variables. AVE values of six facets in the present study were greater than 0.7. It represented all AVE, Mean and Standard Deviation (SD) in convergent validity. The AVE value of each facet was larger than the shared variance between the constructs, which means that the square root value of the average variation of the potential variables was larger than the correlation coefficient. It represents "divergent validity." From the value of the mean, all are greater than 4. It means that the relationship between class tutors and students is satisfied by the participants.

Table 1: Frequency Table in Five Colleges

College	Frequency	Percent	Cumulative
Science and Engineering	606	12.7	12.7
Management	2029	42.4	55.1
Humanities and Social Sciences	827	17.3	72.4
Information	666	13.9	86.3
Design	654	13.7	100
Total	4782	100	

Table 2: Basic Statistics

	Q1	Q2	Q3	Q4	Q5	Q6
Number	4782	4782	4782	4782	4782	4782
Mean	4.30	4.47	4.19	4.38	4.30	4.49
SD	.779	.704	.853	.750	.801	.681

Table 3: Reliability and Validity Analysis

Item	Convergent Validity		Mean	SD	Discriminant Validity					
	Cronbach's Alpha	AVE			Q1	Q2	Q3	Q4	Q5	Q6
Q1	.937	.840	4.30	.779	**.916**	.783**	.863**	.788**	.785**	.708**
Q2	.941	.807	4.47	.704	.783**	**.899**	.730**	.798**	.764**	.762**
Q3	.942	.801	4.19	.853	.863**	.730**	**.895**	.779**	.770**	.672**
Q4	.938	.837	4.38	.750	.788**	.798**	.779**	**.915**	.792**	.764**
Q5	.947	.738	4.49	.681	.708**	.762**	.672**	.764**	**.859**	.731**
Q6	.941	.809	4.30	.801	.785**	.764**	.770**	.792**	.731**	**.900**

Note: **. p<0.01

Basic statistics of multiple-option questions

About the multiple option questions, the frequencies are shown in Table 4. As we apply the Chi-squared test on question 7 (Usually I want to talk to the instructor about the coursework and career planning) to check the effect between the grade and discussion topics (Table 5), it shows a significant difference. The freshmen and sophomore (83%) of them had course-related problems, while seniors had career-related problems more than others. The freshmen discussed with tutors more about their life, emotion, interpersonal relationship, and family-related problems to adjust to the new environment in the first year.

Table 4: Frequency Table of Discussion Topics

		Responses		
		N	Percent	Percent of Cases
Topics	Coursework	3737	40.9%	78.1%
	Life	955	10.4%	20.0%
	Emotion	205	2.2%	4.3%
	Career	3292	36.0%	68.8%
	Interpersonal relationships	618	6.8%	12.9%
	Family	207	2.3%	4.3%
	Others	133	1.5%	2.8%
Total		9147	100.0%	191.3%

Table 5: Cross Table of Discussion Topics with Grade

			Grade				Total
			1	2	3	4	
Topics	Coursework	Count	988	1083	883	783	3737
		% within grade	83.0%	83.2%	79.0%	66.8%	78.1%
	Life	Count	273	270	212	200	955
		% within grade	22.9%	20.8%	19.0%	17.1%	20.0%
	Emotion	Count	73	61	30	41	205
		% within grade	6.1%	4.7%	2.7%	3.5%	4.3%
	Career	Count	826	875	755	836	3292
		% within grade	69.4%	67.3%	67.5%	71.3%	68.8%
	Interpersonal Relationships	Count	195	164	124	135	618
		% within grade	16.4%	12.6%	11.1%	11.5%	12.9%
	Family	Count	70	69	30	38	207
		% within grade	5.9%	5.3%	2.7%	3.2%	4.3%
	Others	Count	30	33	31	39	133
		% within grade	2.5%	2.5%	2.8%	3.3%	2.8%

In **Table 6**, regarding question 8 (I look forward to the way instructors improve the good relationship with students), it was found that class meetings and participation in activities were two major options chosen by the students.

Table 6: Frequency Table of the Way Instructors to Improve the Good Relationship

		Responses		
		N	Percent	Percent of Cases
The way instructors improve the good relationship	Class meetings	3030	32.0%	63.4%
	Individual interviews	1611	17.0%	33.7%
	Visit	354	3.7%	7.4%
	Participation in activities	1784	18.9%	37.3%
	Social activities	768	8.1%	16.1%
	Knowledge activities	411	4.3%	8.6%
	Counseling classes	573	6.1%	12.0%
	Websites	798	8.4%	16.7%
	Others	132	1.4%	2.8%
Total		9461	100.0%	197.8%

Table 7: Cross Table of the Way Instructors to Improve the Good Relationship

			Grade				
			1	2	3	4	Total
Ways	Class meetings	Count	744	808	738	740	3030
		% within grade	62.5%	62.1%	66.0%	63.1%	63.4%
	Individual	Count	416	456	370	369	1611
	interviews	% within grade	34.9%	35.0%	33.1%	31.5%	33.7%
	Visit	Count	87	85	78	104	354
		% within grade	7.3%	6.5%	7.0%	8.9%	7.4%
	Participation in	Count	532	512	350	390	1784
	activities	% within grade	44.7%	39.4%	31.3%	33.3%	37.3%
	Social	Count	210	242	180	136	768
	activities	% within grade	17.6%	18.6%	16.1%	11.6%	16.1%
	Knowledge	Count	122	131	94	64	411
	activities	% within grade	10.2%	10.1%	8.4%	5.5%	8.6%
	Counseling	Count	177	173	122	101	573
	classes	% within grade	14.9%	13.3%	10.9%	8.6%	12.0%
	Others	Count	214	227	166	191	798
		% within grade	18.0%	17.4%	14.8%	16.3%	16.7%

As we apply the Chi-squared test to check the effect between the grade and discussion topics (**Table 7**), it also shows a significant difference. Class meetings are agreeable methods to enhance their interaction during all four years of study.

ANOVA and Post Hoc Test

ANOVA analysis and post hoc test can determine whether there is a significant factor to detect the differences between each facet of variance.

Gender

In gender, the values of the student-teacher relationship are higher for male students (Average=4.45) than females (Average=4.31). About the gender of tutors, female tutors (Average=4.43) were more popular than male teachers (Average=4.29). The P-value was significantly smaller than 0.05.

Gender combinations

In the gender combinations between students and tutors (**Table 8**), it was found that female teachers were more popular with both male and female students. The combination between female students and male tutors has a significant difference. It demonstrates that gender influenced the student-teacher relationship.

Table 8: ANOVA and Post Hoc Test Analyses in Gender Combinations

Items	Gender	N	Mean	SD	F	p-value	Scheffe
Q1	1.m&M	1062	4.32	0.805	36.720	0.000	1>3
	2.m&F	522	**4.57**	0.673			2>1;2>3;2>4
	3.f&M	1703	4.18	0.817			
	4.f&F	1495	4.33	0.720			4>3
Q2	1.m&M	1062	4.47	0.728	27.314	0.000	1>3
	2.m&F	522	**4.67**	0.577			2>1;2>3;2>4
	3.f&M	1703	4.37	0.754			
	4.f&F	1495	4.50	0.647			4>3
Q3	1.m&M	1062	4.23	0.854	40.115	0.000	1>3
	2.m&F	522	**4.51**	0.723			2>1;2>3;2>4
	3.f&M	1703	4.06	0.886			
	4.f&F	1495	4.19	0.824			4>3
Q4	1.m&M	1062	4.39	0.774	27.306	0.000	1>3
	2.m&F	522	**4.61**	0.641			2>1;2>3;2>4
	3.f&M	1703	4.28	0.782			
	4.f&F	1495	4.39	0.709			4>3
Q5	1.m&M	1062	4.47	0.718	22.597	0.000	1>3
	2.m&F	522	**4.66**	0.584			2>1;2>3;2>4
	3.f&M	1703	4.40	0.723			
	4.f&F	1495	4.53	0.619			4>3
Q6	1.m&M	1062	4.34	0.818	30.104	0.000	1>3
	2.m&F	522	**4.55**	0.697			2>1;2>3;2>4
	3.f&M	1703	4.19	0.823			
	4.f&F	1495	4.31	0.774			4>3

Note: gender of students (m: male; f: female); gender of tutors (M: male; F: female)

Table 9: ANOVA and Post Hoc Test Analyses in Grade

Items	Grade	Mean	SD	F	p-value	Scheffe
Q1	1.Freshmen	4.25	0.785	5.400	0.001	
	2.Sophomore	4.35	0.750			2>1; 2>3
	3.Junior	4.26	0.784			
	4.Senior	4.33	0.795			
Q2	1.Freshmen	4.44	0.688	2.792	0.039	
	2.Sophomore	4.51	0.701			
	3.Junior	4.45	0.690			
	4.Senior	4.46	0.734			
Q3	1.Freshmen	4.14	0.840	6.006	0.000	
	2.Sophomore	4.25	0.831			2>3; 2>1
	3.Junior	4.12	0.868			
	4.Senior	4.22	0.872			4>3
Q4	1.Freshmen	4.35	0.743	6.211	0.000	
	2.Sophomore	4.45	0.727			2>3; 2>1
	3.Junior	4.33	0.753			
	4.Senior	4.37	0.773			
Q5	1.Freshmen	4.42	0.715	7.939	0.000	
	2.Sophomore	4.55	0.661			2>1
	3.Junior	4.47	0.673			
	4.Senior	4.51	0.668			4>1
Q6	1.Freshmen	4.27	0.780	3.169	0.023	
	2.Sophomore	4.36	0.796			
	3.Junior	4.28	0.790			
	4.Senior	4.28	0.836			

Grade

From **Table 9**, it is evident that students' grades significantly varied over four years. The mean score value in the case of a sophomore in the student-teacher relationship was significantly higher compared to others. Also, results from Q1 and Q5 (**Table 9**) indicated that tutors lacked the degree of concern and contact in the case of freshmen. While answers to questions Q3 and Q4 (**Table 9**) indicated that tutors for junior grade students lacked understanding and had poor communication.

Table 10: ANOVA and Post Hoc Test Analyses in Colleges

Items	College	Mean	SD	F	p-value	Scheffe
	1. Science and Engineering	4.32	0.812	21.817	.000	1>5
	2. Management	4.36	0.740			2>5;2>3
Q1	3. Humanities and Social Sciences	4.21	0.785			
	4. Information	4.41	0.708			4>5
	5. Design	4.09	0.871			
	1. Science and Engineering	4.47	0.755	15.738	.000	1>5
	2. Management	4.51	0.666			2>5;2>3
Q2	3. Humanities and Social Sciences	4.4	0.707			
	4. Information	4.56	0.615			4>5
	5. Design	4.31	0.812			
	1. Science and Engineering	4.25	0.841	24.828	.000	1>5;1>3
	2. Management	4.24	0.817			2>5;2>3
Q3	3. Humanities and Social Sciences	4.05	0.892			
	4. Information	4.33	0.777			4>5;4>3
	5. Design	3.96	0.936			
	1. Science and Engineering	4.39	0.776	24.703	.000	1>5;1>3
	2. Management	4.44	0.703			2>5;2>3
Q4	3. Humanities and Social Sciences	4.25	0.780			
	4. Information	4.51	0.663			4>5;4>3
	5. Design	4.19	0.851			
	1. Science and Engineering	4.44	0.749	12.375	.000	
	2. Management	4.53	0.642			2>5
Q5	3. Humanities and Social Sciences	4.46	0.667			3>5
	4. Information	4.55	0.624			4>5
	5. Design	4.34	0.776			
	1. Science and Engineering	4.34	0.815	18.323	.000	1>5;1>3
	2. Management	4.35	0.755			2>5;2>3
Q6	3. Humanities and Social Sciences	4.18	0.851			
	4. Information	4.42	0.719			4>5;4>3
	5. Design	4.13	0.895			

College

In **Table 10**, college as a variable was a significant factor. From Q1 to Q5, the College of Design was significantly inferior to the other four colleges. On the contrary, the student-teacher relationship in the colleges of Information and management was better than others.

Correlation

ANOVA and post hoc analysis indicated that the gender of a tutor, the gender of the student, the grade, and the college are the four variables that affected the relationship. Therefore, in this study, we tried to explore a correlation between the grade point average (GPA) and student-teacher relationships in one tutor class. Department of Accounting, a sophomore and female tutor, was selected because the sample size was larger than 30 (N=53; male=20, female=33) and

it could fit the significance criterion. The analysis of data collected from the Office of Academic Affairs showed that the higher the score of the student-teacher relationship, the better was the GPA (**Table 11**) indicating a positive relationship.

Table 11: Pearson Correlations

	Q1	Q2	Q3	Q4	Q5	Q6	GPA
Q1	1	.847**	.818**	.804**	.820**	.825**	0.056
Q2	.847**	1	.855**	.937**	.952**	.980**	0.172
Q3	.818**	.855**	1	.916**	.822**	.833**	0.129
Q4	.804**	.937**	.916**	1	.862**	.916**	0.183
Q5	.820**	.952**	.822**	.862**	1	.933**	0.134
Q6	.825**	.980**	.833**	.916**	.933**	1	0.169
GPA	0.056	0.172	0.129	0.183	0.134	0.169	1

Note: ** p-value is significantly smaller than 0.01

Regression Analysis

To explore students' eagerness for seeking tutors' help, regression analysis could predict important factors and create an influential model. The independent variables were: college, the gender of students and tutors, grade, working years, and the scores of questions Q1 to Q5. The dependent variable was the score of question Q6. Through the stepwise regression, the adjusted R square was .73. The results (**Table 12**) matched the post hoc test analysis.

The equation was:

Y=-.129-.03*G1+.192*Q1+.179*Q2+.183*Q3+.257*Q4+.193*Q5+0.003*Experience

From Table 12 we can find that Q1-Q5, tutor teaching experience, grade, and gender are significant variables to Q6 because of their p-value (<0.05). The standardized coefficients of Q1 to Q5, experience, and gender are all positive to Q6. It means that as the satisfaction of a student-teacher relationship was higher; the students were more willing to discuss with tutors. Besides, tutors with more teaching experience were preferred by the students, and male students were willing to discuss or seek guidance from them. However, in our study, the coefficient of grade (G1) was negative to Q6. It means that sophomore and senior students lacked the motivation to discuss with tutors. The results are similar to the post hoc test analysis in Table 9. The freshmen and the junior students were more eager to discuss different issues with tutors.

Table 12: Coefficients in Stepwise Regression Model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-0.129	0.045		-2.857	0.004
Q4	0.257	0.016	0.241	15.886	0.000
Q1	0.192	0.017	0.186	10.994	0.000
Q5	0.193	0.015	0.164	12.829	0.000
Q3	0.183	0.015	0.195	12.358	0.000
Q2	0.179	0.017	0.158	10.853	0.000
Experience	0.003	0.001	0.022	2.979	0.003
G1	-0.03	0.012	-0.018	-2.442	0.015
Gender(s)	0.027	0.013	0.016	2.113	0.035

Discussion

Gender

The analysis results show that female teachers were more popular with both male and female students. Similar to the present study, Jones and Wheatley (1990) found that female teachers and male students were a better combination for a good student-teacher relationship. In our gender combinations, male tutors had the lowest scores with female students. Cavallo and Laubach (2001) stated that female students felt natural with classmates but felt uneasy interacting with teachers directly. In our study, the values of the tutor-student relationship were higher for male students compared to females. Studies by other researchers have demonstrated that male students interacted more with teachers compared to females' (Barba and Cardinale, 1991; Sun et al., 2007).

Grade

Several reports are demonstrating that the student-teacher relationship affects students' grades (Lewis et al., 2005; Riley, 2009; Wubbles et al., 1988). In the present study, it was found that tutors lacked a higher degree of concern and communication with freshmen. Since it is the first year of university, freshmen discussed with tutors more about 'life', 'emotion', 'interpersonal relationship', and 'family-related problems to adapt to the new environment on campus. Therefore, tutors' needed to have a higher degree of concern and communication with freshmen compared to other students. In separate research, first-year nursing students considered the role of tutors as very important and instrumental in the first-year transition that helped to reduce dropouts (Potolsky et al., 2003).

Experience

In the present study, regression analysis results showed that students were willing to discuss with tutors or request guidance from senior tutors. In two different studies, Wubbles et al. (1988), and Martin and Shoho (2000) have reported that experienced teachers could effectively handle emotional and, behavioral issues, academic outcomes, and classroom management.

Academic Ability

In our study, it was observed that the better the student-teacher relationship, the higher was the GPA. It conforms with other studies (Liew et al., 2010; Hamre and Pianta, 2001; Hughes et al., 1999). A good relationship leads to higher stability (Ladd et al., 1997). However, an emotional bond between students and teachers may not be enough to affect students' enthusiasm for learning. Instead, other factors, such as students' pedagogical strategies and distinctive activities, may significantly affect their performance and interest.

Implications and Recommendations

Students and teachers are the two most important constituents of an academic institution, and their relationship affects each other and the institution in so many ways. Therefore, it is important to understand the factors affecting the student-teacher relationship in a given institution so that corrective measures can be taken for the benefit of all the stakeholders. The ability to forge a positive and powerful relationship between a student and teacher may seem like a difficult task, but can be accomplished by taking care of the factors affecting the desired outcome. In the present study, it was found that the gender of the teacher had a significant effect on the teacher's popularity. Female teachers were more popular with both male and female students. Therefore, the university may not shy away from recruiting a higher number of female teachers if necessary.

Regarding the grade factor, freshmen discussed with tutors more about adaptive problems, while seniors focused more on their career-related problems. Given this, the office of students' affairs can create a set of forums where students' multifarious concerns can be resolved. According to Rumberger (2011), student's individual characteristics such as attitude, behavior, and performance play a vital role in student's dropout rates. Results in the present study demonstrate that a good student-teacher relationship leads to higher stability and better student GPA, especially for freshmen. The office of students' affairs not only can arrange popular tutors to care and support first-year students at the beginning of their learning in the university, but also design and plan more resources for the tutors to enhance their motivation in devoting more time and efforts to improving the retention of students in the university.

About the variables of college and teachers' experience, to improve the relationship among students and teachers, the office of students' affairs in the case university can plan and arrange on-job training for tutors. Also, the office can arrange interactive sessions in the form of workshops and class demonstrations for new teachers so that senior teachers can share their experiences with them. Besides, the administrative units can support the tutors to set up a knowledge management database to solve students' problems related to coursework, life-related issues, emotional issues, career planning, interpersonal relationship, family issues. Such a system will facilitate tutors to have access to immediate suggestions to solve students' problems.

Results of the multiple-option questionnaire in our study showed that class meetings and tutors' participation in activities were two ways to enhance a good student-tutor relationship throughout the four years. In the case of freshmen, a tutor who participated in activities paid higher attention and interacted more with the students. Therefore, the university must encourage teachers to have consistent communication to create a connection between the two. A teacher who understands the problems of his or her students and then shapes his or her teaching style to interact better with the student can see success. The more the teacher communicates, the higher is the chance of effective learning by students'. Also, creating an open learning environment where different opinions are equally respected, and there is no fear of ridicule from teachers is crucial for building a good student-teacher relationship.

Good feedback depends on the student's positive outlook about the school and the student's interest in school activities (Ladd et al., 1997; Stipek and Miles, 2008). Weimer (2017) stated that feedback during midterm rather than at the end of the semester allows teachers to know problems earlier and take corrective measures. Feedback reflects students' immediate responses to questions and can help them in reducing their anxieties in the first year itself (Surjan et al., 2010). Therefore, an efficient evaluation of the student-teacher relationship in an academic institution is highly desirable.

Further Research

Because of the traditional pedagogy, class instructors in Taiwan are considered to have a major role in the students' learning process. In a student-centric scenario, the outcome of collaborative learning from peers has shown positive impacts on the cognitive performance, social behavior, and affective perceptions of students (Chad et al. 2017; Fawcett and Garton 2005; Johnson et al. 2001; Marzano et al. 2001). It would be of advantage to explore how different cultures and age groups affect the student-teacher relationship.

Conclusions

The student-teacher relationship is one of the important factors that affect students' adaptation, learning, and career competencies. Coursework and career planning were the two topics most discussed with teachers. Freshmen and sophomores had course-related problems, while seniors showed more concern about career-related issues. Since freshmen need to adapt to the new environment on the campus; they had more questions related to 'life', 'emotion', 'interpersonal relationship', and 'family' issues. Therefore, tutors need to have a higher degree of concern and communication with freshmen. Also, class meetings and teacher's participation in activities were found to be two preferred ways to improve the student relationship.

In ANOVA, gender, grade, and college were significant factors in a student-teacher relationship in the case of university. Female teachers were more popular with both male and female students. The score value of the sophomore in the student-teacher relationship was significantly higher compared to other students. The student-teacher relationship in the colleges of Information and Management was found to be the best among the five colleges in the case university. The correlation analysis showed that the scores of student-teacher relationships and GPA were positively related. The stepwise regression analysis indicated that male freshmen

needed teacher's initiative for a higher degree of concern and communication, while juniors showed more anxieties about internship opportunities and careers. The popular attributes of tutors were found to be good communication, a higher degree of concern, communication and access, willingness to help in solving students' problems. Findings in the present study may be of help to teachers in improving class management, enhance students' learning performance and satisfaction, thus resulting in higher retention rates in the university.

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Educational Experiences and perceptions of American Students toward Arab Students in the US: A Qualitative Study

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ABSTRACT

The study aimed at identifying the social and cultural perceptions of American students toward Arab international students at a Midwestern university. To achieve the objective, the researcher conducted individual interviews with 15 junior and/or senior American students in the business college (13 female and 2 male). Study participants were selected through purposeful sampling. The main questions that led the study were: How do American students describe their social and cultural experiences with Arab students? And what factors influence their perceptions toward Arab international students? The results of the study indicated that most participants lacked accurate or in-depth knowledge about who Arabs are as ethnic and cultural people. Participants held many misconceptions about Arabs and assumed they did not like to interact with Americans on campus due to some factors such as language barriers and cultural clustering. Because of these assumptions, Americans were hesitant to approach Arabs or build social relationships with them.

Key words: University, diversity, social, interaction, international students

Introduction

Many Arab students seek to pursue their studies in the United States. The most important reasons for Arab students to enroll in English-speaking countries such as the US is to improve their proficiency in English and develop educational and cultural experiences with American people (Beaver & Tuck, 1998). The main incentive for studying abroad is the perceived value of a foreign degree, such as better opportunities in finding jobs after graduation, lower tuition costs, and immigration.

Arab students expect college life in the US to bring them important opportunities for intellectual, personal, and social development. Many of these expectations are realized while other positive feelings characterizing students' precollege life are replaced by negative feelings after spending some time at college (Pancer, Hunsberger, Pratt, & Alisat, 2000).

Student experiences at college are often harder and more stressful than what many of them expect (Compas, Wagner, Slavin, & Vannatta, 1986). In their first academic year, Arab students learn to adjust to new requirements, such as independence and coping with a new environment that differs from the one experienced in homelands. They usually move away from their families and friends for the first time during this period and live away from their social support system (Rice, 1992).

The transition from secondary to university education is a challenging experience for both domestic and Arab students. In this study, the term domestic students refer to students attending college in their native country, that in this case is the United States. International students refer to students native to countries outside the U.S. enrolled in courses at American colleges or universities. Similar to International students, Arab students are usually admitted under a temporary visa that lasts for as long as they are in school (Skinner & Shenoy, 2003). There is a common expectation that, as part of the college experience, both domestic and Arab students will develop new ways of thinking, learning, and communicating. The vocabulary of a new academic discipline will also be as different to domestic students as it will be to Arab students and getting acclimated to the academic styles of American post-secondary institutions will be equally required to become active and independent participants in their learning (McLean & Ransom, 2005).

Arab students start their academic life full of hope and enthusiasm to explore the new educational environment and mix up with their peers in the US. However, most of their expectations are not met, which leads them to lose interest in interacting with American students gradually. On the other hand, they feel discouraged to take the initiation to build a relationship with American students assuming that American students do not prefer to befriend them due to some stereotypes associated with Arabs.

The importance of this study is to understand the nature of the educational experiences of American and Arab students from the perspective of American students. Most studies addressed

the educational experiences of Arab and international students from their perspectives but rarely discussed it from the domestic student's perspective.

Purpose of the Study

The purpose of this study was to explore American students' perspectives regarding interaction with Arab international students. The growing number of international students in U.S. colleges and universities represents a valuable opportunity for cross-cultural interaction and communication (Volet, 1997). Knowing how American students view Arab students when they are together on or off-campus will illuminate the nature of cross-cultural communication within a university context. Thus, such an investigation also has the potential to reveal why open social and educational interactions may or may not be occurring.

Research Questions

The critical question guiding my study is, "What are the perceptions of American college students regarding intergroup relations in a shared classroom experience with Arab students?" Accordingly, the research questions framing my study are:

1. How do American students describe their experiences with Arab students?
2. What are the beliefs and attitudes of American students toward Arab students?

Literature Review

Educational Experiences

Studying abroad can serve different social and cultural goals for the host country and its students. Studying alongside international students may diversify domestic students' perspectives about other countries and increase their understanding and appreciation for different cultures and languages inside and outside the classroom (Bevis, 2002; Harrison, 2002). Such diversity has the potential to encourage cross-cultural dialogue and foster the educational experiences of domestic students through a friendly learning environment (Ward, 2001). The presence of international students can also motivate domestic students to attain better social and cultural outcomes, such as helping others, developing new friendships, and improving their interpersonal skills in dealing with and learning from diverse cultural groups of students (Smith & Elliott, 2013). Similarly, when international students return to their home countries, they can serve as ambassadors to promote an exchange of cultural values and understandings between the different countries (Lee & Rice, 2007).

Lack of interaction, however, between domestic students and international students hinders achieving the social and cultural goals of international education. Therefore, one of the main challenges facing international students and the focus of this study is their limited interaction with Americans (Al-Sharideh & Goe, 1998). International students increasingly desire to interact and befriend the domestic students with whom they attend school (Smart, 2000; Ward &

Masgoret, 2006) and are frequently disappointed when they are unable to interact with domestic students or cross the hidden barriers that impede establishing cross-cultural friendships. One unintended consequence of this failure that makes it even more difficult to establish rapport is each party assuming the other does not want to initiate relations with them (Le, 2010).

Social Capital

Social capital includes different aspects of social organizations, such as networks, trust, and norms (Putnam, 2000). It also refers to ties and communication among individuals of the same network and presents an important source of achieving members' goals by creating shared norms, values, and reciprocal trust. When social capital is lost, other forms of capital (financial or human) are not sufficient for making effective cultural and economic progress (Baker, Smith, & Cowan, 2003). Student social capital is shaped by educational institutions and can influence their academic accomplishments (Putnam, 2000). Therefore, student academic experiences are enriched when they are challenged intellectually and academically and when they have social support (Roberts et al., 2001). In other words, students who have social capital are more likely to achieve successful academic and cultural outcomes (Pishghadam & Zabihi, 2011). Putnam (2000) distinguishes between two types of social capital and the networks formed by them. He defines bonding social capital as relationships formed between homogenous groups (i.e., American students), whereas bridging social capital is shaped across heterogeneous social groups (i.e., American and Arab students).

Although friendships between domestic and international students represent a prime example of bridging and bonding social capital and an influential structure of positive or high-quality interaction, students face obstacles to initiate friendships with each other (Davies, Tropp, Aron, Pettigrew, & Wright, 2011). Some international students have trouble in making cross-cultural friendships (bridging); nevertheless, they persist in their attempts despite receiving little interest from domestic students. Domestic students are less interested in connecting with international students and are more apt to bond with students from their cultural group (Brown & Daly, 2004). As a result, some international students tend to bond with friends from the same culture or students who belong to countries other than the host culture (Furnham & Alibhai, 1985). Some Arab students in the United States prefer to live in an insular cultural environment similar to that back home (Alreshoud & Koeske, 1997). Saudi students, for example, live in small communities in the U.S. and prefer to interact with each other. They recruit their families to live with them and thus have their organizations and places to celebrate social occasions and perform religious ceremonies. All of these factors encourage Saudi students to replicate the lifestyle they had in their home country. On the other hand, this bonding behavior leads to less interaction with Americans compared to other international ethnicities. The lack of interaction with the host community might reinforce the unfriendly image the Arab students have about American culture (Alreshoud & Koeske, 1997).

Arab Stereotypes

Negative stereotypes and biases against some cultures prevent domestic students from interacting with some international students. International students have different experiences in the U.S. and Britain associated with their origin home countries. Some of these experiences can be attributed to stereotypes people in the host countries have about other cultures and ethnicities (Lee & Rice, 2007).

Discrimination against international students influences their interaction with peers, staff, faculty, and the community (Hanassab, 2006). In a study to assess international students' experiences with discrimination in an American university, Hanassab (2006) found students from the Middle East and Africa were stereotyped more negatively than students from other regions. These negative stereotypes stemmed from the September 11, 2001, tragic event and its association with people from Arab and Islamic countries (Hanassab, 2006). On the other hand, international students from developed countries might have negative stereotypes about the culture of the country where they chose to study. Some American students studying in Middle Eastern and South African universities had perceived the region in a distorted stereotype before interacting with local Arab students in these countries. They expected to meet people full of anger and riding on camels amid huge sand dunes. These images of the Middle East are derived from the widespread negative portrayal many people in America have about this region (Lane-Toomey & Lane, 2012).

The tragic event of 9/11 against the Twin Towers in New York City has increased the prejudice of some Americans against Arab people (Inayat, 2002). According to a study by Tummala-Narra and Claudius (2013), some Arab students have experienced prejudice in the United States because they perceived a feeling of isolation in the host country. To reduce this feeling, they felt they needed to clarify their Islamic values to other nationalities, but they were cautious to discuss these issues due to the stereotypes linked to their homelands and religion (Tummala-Narra & Claudius, 2013). Over time, some of these stereotypes might have changed recently and events in the world might alter existing stereotypes.

Methodology

Research Context

This study was conducted at New Century University (NCU). NCU is a public, four-year, coeducational institution located in Middletown. There were 15,000 students enrolled in 2015. Of this total, there were 1,716 international students--962 undergraduate and 754 graduate. The majority of international students (823) studied engineering, followed by students enrolled in the Intensive English Language Center (245). There were 446 Arab students--382 undergraduate and 64 graduates. The largest portion of Arab students came from Saudi Arabia (406) and these students received support from the King Abdullah scholarship program (Leggett, 2013). A breakdown of Arab international students according to country of origin is included in Table 1.

Table 1: Arab International Students at New Century University in spring 2015

Country	Undergraduate	Graduate	Total
Egypt	6	3	9
Jordan	6	5	11
Kuwait	9	0	9
Lebanon	4	0	4
Libya	2	0	2
Morocco	1	1	2
Saudi Arabia	352	54	406
Syria	2	1	3
Total	**382**	**64**	**446**

Research Participants and Selection Process

Study participants were selected through purposeful sampling. Purposeful sampling helps researchers develop a deep understanding and gain insights into the phenomena they study. A major advantage of purposeful sampling is selecting information-rich cases to study intensively. Patton (2002) argues that information-rich cases are those that help a researcher "to learn a great deal about issues of central importance to the purpose of the inquiry" (Patton, 2002, p. 230). For this study, information-rich cases were American students who had the opportunity to interact with Arab students during their undergraduate life. The purposeful selection of participants helped me understand in greater depth the nature of the interactions that took place between the two groups (Creswell, 2012). More specifically, I used criterion purposeful sampling because it identified participants who best reflected the purpose of the study and were in a position to answer the research questions by providing rich information about the nature of the interaction between American and Arab students (Merriam, 2009; Patton, 1990). The criteria for selecting participants who best provided relevant and comprehensive information included American students whose first language was English, who was born and raised in the U.S, who were not of Arab ancestry, who were undergraduate students in their third or fourth academic year, and who had attended one or more classes with Arab students.

The individual interviews were conducted with American students in the business college (13 female and 2 male) at a Midwestern university. Four of the 15 students were first-generation college students and 14 had traveled outside the U.S. for tourism or with parents who worked abroad for a while. One student was homeschooled. To assist in locating participants who might meet my selection criteria, the associate dean for academic operations and undergraduate programs at NCU business school sent an email to all junior and senior American students (1428), inviting them to participate in the study. Students who responded to the invitation emailed me directly. Then I conducted the interviews in a place and a time agreed upon by participants and me. Most of the participants were from the Midwestern region (10), three were from the South, and two were from the West. Nine resided in urban areas and six were from

rural areas. Three students were online students and 12 were full-time students on campus. The age of participants ranged from 19-45 years.

The Qualitative Interview

The primary data source used in this study was face-to-face individual interviews. Interviewing domestic students was the strategy I used to gain insights into the nature of the interactions between American and Arab students. In qualitative research, interviewing tends to be less structured than asking sequential questions and relies more on open-ended questions that help participants talk about the world from their emic perspectives

I conducted the interviews with 15 junior and/or senior American students in the business school. The sample size in purposeful sampling is "determined by informational considerations. If the purpose is to maximize information, the sampling is terminated when no new information is forthcoming from new sampled units" (Lincoln & Guba, 1985, p. 202). Thus, I stopped gathering information when saturation was reached; that is when the interviews presented repeated information and no new knowledge was gained (Lincoln & Guba, 1985; Padgett, 2008).

Audio digital recording and transcribing was the technique used in collecting interview data. This technique helped me concentrate on participants' responses and ask probing or follow-up questions that prompted them to elaborate on the things they said. Moreover, audiotaping gave me a chance to take notes during the interview. Note-taking helped in formulating new questions and facilitated analysis later on about what was discussed (Patton, 1990). Thus, I began the process of data analysis during the interviews, paying attention to phrases that required further clarification or follow-up questions. During the interview sessions, I took notes and reread them before listening to the audio-recorded interview.

Findings and Discussions

Interactions with Arab students

American student participants had an insignificant amount of interactions with Arab students outside of class. They sometimes met to work on projects at home and had occasional conversations in the library but rarely socialized in public places. Cross-cultural interactions did not extend beyond asking for directions about how to find something or someplace or asking their colleagues for recommendations about courses and professors. Unless it pertained to a class requirement, the American students in this study did not routinely interact with international students. Clarified one student, "Just if we have a class project."

American students had their preferences when it came to selecting their social surroundings. They preferred to spend time with familiar people who shared the same cultural background. One student explained, "Americans are very cliquey, liking their group and resisting change or outside ideas." Visiting Arabs in their homes allowed one male American student to learn more about Arabic culture and traditions. He described his visit to an Arab home to work on a class assignment: "I got there, took my

shoes off at the front door, and noticed two of his friends on the couch smoking a hookah. It was the first time I had seen this

A female student experienced several good opportunities to socialize with international students in the dorm. She believed the dorm was a good place for cross-cultural interactions because the students there "feel both groups are away from home--American students from faraway cities and Arab students from their country." As a result, it allowed American students to be "exposed more and possibly become friends with each other as they become more comfortable with international students. Living together can help expose Americans to other cultures," explained the student.

American students who anticipated beneficial outcomes from befriending Arab students extended themselves beyond their familiar social networks to meet new people with new perspectives about life, work, and culture. Among the rewards they sought was an improvement in their social skill when interacting with Arabs and learning more about Arab lifestyles and social standards. Unlike most Arabs, American students worked either on or off-campus to earn money to go to school. Some also had other priorities such as taking care of their children and supporting their families. Arab students usually had more free time because many were full-time students or supported by scholarships from their governments. Because American students often had little time to meet other students face-to-face or have virtual discussions on Blackboard, they chose to invest their limited free time with familiar group members. This finding is supported by Fukuyama (1995) who found that socializing consumes an individual's time and may substitute for other activities one needs to do. For several American students, participation in intercultural activities and interactions with Arab students competed with important social, educational, and work responsibilities.

Obstacles Preventing Interaction

Hesitancy to Interact

Participants discussed the mutual hesitancy of American and Arab students to initiate interactions with the other. This hesitancy seemed related to perceptions and presumptions about the other that closed off avenues of communication rather than opening them. One student stated, "When talking to Arab students, I feel they are reluctant, hesitant, and not encouraged to talk more. The same thing can be said about us [Americans] because we don't have many common topics to talk about."

Arabs kept to themselves in closed groups that made it difficult for American students to penetrate these groups. Clarified one student, "You are only one individual which makes it hard. Because they already are a group." This hesitancy also shaped American student expectations about the willingness of Arab students to communicate with them. They stick to people they already know and are comfortable with." Another student noted, "I have observed that many international guys interact only with each other and don't want to socialize outside their groups."

The cultural clustering of Arabs was the main reason why interactions were hindered. Because of the language barriers, some Arabs tended to select seats in the back of the class and preferred to be surrounded by other co-nationals most of the time. Many participants justified this behavior and thought they would act the same way if they were studying abroad with students who spoke

a different language. Several participants viewed this behavior negatively by assuming Arab students did not want to mix or initiate contact with them. Similar to other international students, Arab students concentrate more on grammar, reading, and writing than speaking and listening. One participant recalled her visit to Korea where she noticed that Korean students were good at using mobile phones to text friends or their computers to send and receive emails. However, they were less proficient when it came to conversations with Americans.

Misconceptions

American students revealed limited knowledge about Arab culture and religion. For example, Arabs were assumed to be wealthy people. The appearance and status of women generated other misconceptions frequently expressed in the interviews. War and conflict were dominant images that surfaced for students whenever the word Arab was mentioned.

Wealth and oil was a perception some Americans had about Arabs. A few students thought Arabs possessed great wealth because many of their Arab classmates had governmental scholarships and owned expensive cars. One student stated, "When I see an Arab international student, I feel now they are probably loaded with money." Along these lines, another student commented, "I think of the Middle East as oil. A lot of pictures on social media show a wealthy side. They seem to have nice cars and very nice houses. These people are really rich." Because a few Arab students had scholarships from their home countries and drove expensive cars, several Americans thought of all Arabs as wealthy people. The wealthier students mostly came from oil-producing countries such as Saudi Arabia, the United Arab Emirates, and Kuwait. Yet, the case was different for students from other Arab countries who depended on family financial support or were self-funded to complete study requirements in the U.S. American students tended to generalize their beliefs about wealth and background to all Arab students based on these well-off examples they had known or heard about.

A majority of participants commented on gender separation and the status of women in Arab culture. Women were portrayed as oppressed, lacking civil rights, and controlled by male members of the family. One student stated, "They just don't have any rights. I don't think I was aware of it." Arab women were pictured as victims of a patriarchal society and less value than men. Female study participants tended to believe Arab women were considered less important than men, a belief that made them hesitant to talk to Arab men. The popular image of Arab men as perpetrators of violence in the Middle East also kept them apart. Several students admitted choosing not to interact with Arab females because of their modest appearance. They could not avoid gazing at their head covers and did not want to appear rude when asking what might be considered inappropriate questions about their hijab or burqa.

Stereotypical images about the status of women were spread through movies such as *Jason Bourne* that displayed Arab women as victims who did not have even basic human rights. Reading and searching the internet helped American students to understand the different perspectives associated with Arab and Muslim modesty. This was similar to Cadinu and

Rothbart (1996) who found that cross-cultural interactions on campus reduced negative patterns related to stereotyped cultures. Moreover, international students representing these cultures could take steps to dispel undesirable notions associated with their ethnicities.

War and conflict were the primary features most participants associated with Arabs. When asked about Arabs in the interview, participants thought of the Middle East as a conflict region and wars for religious purposes and oil. For some, the benefits America received from being involved in the region played a role in these conflicts.

For the majority of participants, media played a key role in reinforcing negative images about Arabs, particularly those associated with the events of September 11. One student stated, "What's there in the media is not good. They say bad things all the time about extremists." One student commented about the impact of media on shaping the popular image of Arabs: "The media news always pursues negative things and never anything good." She criticized, "It is never that international students boost our economy.

The events of 9/11 and the association with people from Arab and Islamic countries invited study participants to think of Arabs as a threat to America. Media reinforced unwanted images about Arabs by concentrating on the war in the Middle East and attributing any terrorist acts to Arabs. Consequently, several American students viewed Arabs and terrorism as two faces of the same coin. The same finding was supported by Hanassab (2006) who found that students from the Middle East and Africa were stereotyped more negatively than international students from other regions.

The different political orientations of American students about Arabs and Muslims in the U.S. worked to encourage or discourage interaction between American and Arab students. The influence of local community norms and worldviews could make the efforts of educational institutions to bring mutual understanding and coexistence among students of different ethnicities and cultures more difficult. Because of the timing of this study, the 2016 presidential race between Hillary Clinton and Donald Trump was a topic that influenced Arabs images among the study participants.

The prevailing values and beliefs in the larger society shaped some of the misconceptions held by the majority of American students about other ethnicities. For instance, one student mentioned, "I haven't seen any backlash against Arabs or Muslims but I won't be surprised because Trump supporters jumped on that wagon. I have my worries but I won't be surprised if some violence takes place against Arabs." Some students associated discrimination against Arabs and minorities with the level of education Americans received. One student shared, "Discrimination is more of an issue for people who are not educated. I think our male [presidential] candidate wants to be involved in the Middle East to remove our enemies." Although American students were open to learning about Arabs and their culture, most were not interested and preferred to spend their time with other domestic students. They did not anticipate receiving any benefits from socializing with Arabs and were candid about identifying obstacles

and misconceptions that prevented them from approaching them. These obstacles diminished the likelihood of engaging in constructive interactions. The findings in this study support prior research suggesting that low levels of interaction between domestic and international students limit the benefits both groups can achieve (Ward, 2001).

Altered Perceptions

Exposure to Arab students in and out of the classroom helped American students to realize that much of what they heard about Arabs and their culture was not accurate. A few participants felt it was better to learn directly from Arabs themselves, not from external resources such as the media. To varying degrees, constructive interactions ignited the curiosity of some participants to know more about this controversial culture and its people.

Some participants reported having more positive thoughts about Arab students once they started meeting them in class. Spending some time with Arab colleagues changes the way American students see them. Just under half of the participants reported a decline in the influence of the media after they began learning about Arabs. They felt they more accurately understood the actual situation of Arabs in the Middle East. The misconceptions held by American students about Arabs gradually vanished when constructive links between the two sides took place. The circle of negative assumptions about Arabs diminished when a few students went beyond their initial perceptions and engaged in unplanned conversations with Arabs in class, the library, or off-campus. For example, when one female participant struck up a conversation with an Arab woman in a coffee shop, she was surprised and delighted that the Arab women welcomed her questions about the lives and treatment of women in the Middle East. The Arab woman seemed to be curious as well and had many questions about American culture she had been hesitant to ask because of these invisible barriers between the two sides. Interestingly, the American student had been homeschooled. Based on her personal experience, she assumed that others would be curious about Arabs in the same way they were curious about her experience being homeschooled. By overcoming her hesitancy and daring to cross-cultural barriers, she discovered there was much to talk about with the Arab woman. Even though the study suggested American students shared strong bonding social capital, even minimal interactions between Arabs and Americans seemed to be important for American participants in that the bridging opportunities it provided served to change the way they perceived Arab students. It also suggested that more interactions would create additional opportunities for developing bridging social capital. Participants who had interactions with Arab students wanted to clarify their positive experiences with Arabs to their friends, colleagues, and social networks. Thus, more frequent interactions with Arabs would influence the quality of relationships Americans have with them.

Limitations and Future Research

This study was conducted with 15 students from one college, whereas a sample drawn from different colleges or universities and including more participants would provide us with more insights into the nature of educational experiences of American students with Arabs. The majority of participants were females, including more male students in future research who might have different perspectives and increase the study validity. Furthermore, only one participant did not travel outside the US of the total sample. Students who did not travel outside are likely to provide different ideas.

Recommendations

In this section, I discuss the recommendations derived from the findings and conclusions of this study. These implications are intended to support the social capital of students and to reinforce the bridging efforts between American and Arab students.

American Universities

It behooves universities to find effective ways to support campus diversity by actively establishing friendly learning environments for international students. These environments should provide a welcoming and caring learning atmosphere for international students that is free from prejudice and discrimination. They should also provide fruitful cultural experiences for domestic students. Cultural events could introduce Arabs students and culture to American and other international students. The informality of food fairs would also be a good way to attract students and initiate conversations about each other.

Arab Students

Arab students should not expect American students to initiate bonding with them without being willing to step outside their comfort zones. Traveling to the U.S. to study in a college or university implies having sufficient background about the new environment and culture. When Arabs decide to leave their home country to study abroad, prospective students should search and collect enough data about the host country and its citizens. Upon arrival, they should express themselves and be open to new academic and social contexts. Thus, they had best keep the door open to Americans and American ideas, encourage Americans to ask questions and engage in conversations about different issues even if they face partial failure in the beginning. Arab newcomers can learn from the experiences of other Arabs who have spent more time in the U.S. In addition, improving English language and communication skills would help Arabs bridge with Americans and build constructive educational and social links.

Conclusion

Overall, the American students who participated in this study lacked accurate or in-depth knowledge about who Arabs are as ethnic and cultural people. The majority had only vague images of Arabs and mostly associated them with undesirable characteristics that stemmed from their social networks and environmental influences such as parents, peers, community, and media. They thought of Arabs and the Middle East as a region consumed by war and terrorism where people lived in a desert where women did not have even basic human rights. Because of these assumptions, Americans were hesitant to approach Arabs or build social relationships with them. American students preferred to meet people they were already familiar with because they sought to establish recognizable social networks to compensate for the old social systems they left behind in their hometowns. Most held inaccurate beliefs about the sensitivity of Arabs to cultural politics, wealth, the status of women, war, terrorism, Arabs as people of color, and confusion between Arabs and Muslims.

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The Challenges of the Application of the Productive University's Philosophy In Jordanian Universities and Ways of Developing Them from The Perspective of Academic Leaders

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ABSTRACT

The study aims at identifying the challenges of applying the productive university's philosophy in Jordanian universities and ways of developing them from the point of view of the academic leaders. The analytical descriptive method is used. The study sample consisted of 150 academic leaders, and the questionnaire was used as an instrument for study. The results of the study show that the challenges of applying the productive university philosophy in Jordanian universities come to a great degree of appreciation. The results also show statistically significant differences due to the impact of the universities and came to the benefit of the public universities and the college variable. While the results show that there are no differences due to the impact of the academic rank. As for the proposals for developing the university's productive philosophy, they came as follows: the proposal "that the university administration seeks to re-establish its budget in achieving the balance between the revenues generated by the investments" accounts for (15.89%), while the proposal "to strengthen the management of universities private sector participation in providing the necessary support for the activation of technology institutions of higher education", ranks last by (6.62%). The study recommends that the cooperation between the productive university and the local community within the university should change. In addition, the university should provide facilitation and support to the research grants that seek to strengthen cooperation between universities and local communities and contribute to solving their problems. The productive university should benefit from the experiences of developed nations that have adopted the university's productive philosophy, as well as making the best use of the available resources.

Keywords: Philosophy of the productive university, Challenges of application, Ways to develop them, Jordanian universities.

Introduction

The university represents the basis for the formation and development of various economic and social activities that aim to prepare productive human resources benefiting the university thereby and catching up with distinctive productivity. Therefore, most of the leading universities have sought to integrate with their communities by making community service their priority, they have adopted new trends in politics, economics, and culture through creating "partnerships with community institutions," and giving more interest to scientific research which is considered one of the most factors that distinguish universities to become a cultural, intellectual and scientific center in their community. No university can carry out these roles without being open to its community through dealing with it in the educational process, productivity, and the services it provides.

The university is considered an integral part of the mechanisms of the market and its productive institutions. It markets knowledge, programs, and scientific research that is related to the labor market and a partnership with the institutions of the Society. (Khalifa, 2014). "It is a university that seeks to create ways to reduce costs, increase productivity, and create non-traditional self-financing resources by marketing its products, not for profit, as in the private sector. To cover its costs and the costs of continuous development, improve the quality of education, and contribute to comprehensive community development (Abu Khair, 12: 2016).

This is consistent with what Haikel (2014) stated that the university is not a private sector-partner but part of the production. The community has empowered it to respond to its requirements and demands to achieve its expectations and participation as possible with its members and institutions in its renaissance and progress through what services, programmers, and activities it offers, also through the employment of its community resources such as human and financial resources (Tal and Sarayrah,2013). Since its mission is not limited to the traditional objectives (research, teaching, and community service) but extends to all aspects of scientific and technological life making the interaction with the society and providing its demands its most important duty. (Bashir, 2012).

Therefore, these institutions must aim to increase their productivity and create opportunities for economic growth. This will only be achieved through partnership in productive research projects and participation in technical development. The institutions of higher education have recently undergone a remarkable transformation in their educational and research roles in response to some economic variables which has made it more demanding than ever to integrate into market mechanisms, thereby increasing its financial burden. Although the institutions of higher education in Jordan have constant demands for the development of education, they face different complications in providing resources due to the huge financial allocations required for operating these institutions.

Tweissi (2017) stated that Jordanian universities witnessed a severe financial crisis and a weak scientific research strategy that hindered the developmental plans and achieving sustainability.

Nevertheless, some Jordanian universities continue to research and create investment opportunities as well as building a productive interaction with the private sector, as the Green University; Al Hussein Bin Talal University in Ma'an has done to invest in renewable energy projects.

In Jordan, Hashemite University is considered one of the leading universities in its total dependence on the university's resources in terms of facilities, building classrooms without borrowing from any other party. In addition to its application of solar energy systems. It is also the first Arab university to adopt two summer classes in one year which allows the student to graduate early to join the local and Arab labor market or to complete their higher education in addition to its contribution in solving the problem of transportation and improving university income. It is considered one of the leading universities which depend on when recruiting on the competencies regardless of the source of the certificates whether the certificate was issued from foreign or Arab university, efficiency is the criterion of appointment. Additionally, the University of Science and Technology has achieved a distinguished result in various global ranking as QS THE, it has ranked first in the ranking of the official universities of Jordan in (2018) and the best in (58) universities according to the Times Higher Education classification in the emerging economies of the Year (2019), and it also has obtained several quality certificates specialized in the academic and administrative fields (http://www.just.edu.jo). Accordingly, Jordanian universities must adopt a policy of research production and productivity like the leading universities which attain their self-sufficiency, overcome obstacles, and developed their institutions (Jarrah, 2017). Therefore, the need to study the challenges facing the application of the productive University's philosophy in Jordanian universities and to look for ways to develop them from the perspective of academic leaders has risen.

Literature Review

The concept of a productive university does not contradict the general concept of a university but extends to the exercise of productive activities that are appropriate to the educational process, and to the follow-up of production problems in the field of work, which brings additional financial resources and reduces its dependence on external financing (Sherbini,2009). The opinions of researchers and those who are interested in this field varied in defining the term “productive university.” Some of them identify it as a university that works to increase its resources from the services it provides to others while maintaining its scientific and cultural responsibility towards the society at the same time (Zuhairi, 2015). It is concluded that the productive university is a developmental services university that seeks to provide additional funding resources to the university by activating its partnership with productive institutions in the local community while maintaining its scientific and cultural responsibilities towards the society at the same time through investing the human and material resources and experiences at the university with the partnership of productive institutions in the community.

The philosophy of productive university and its reasons

Philosophically, To transform into a productive university system requires as stated by Sherbini (2009) to dissolve the differences between the functions of the university and consider them as an integrated system that affects and is affected by each other, so that it can be opened to society, to reconsider the process of preparing the student and to identify the problems and issues of society whether they are related to the production processes or services. (Perkmann, King & Pavelin, 2011). In addition to the flexibility and freedom in the laws and regulations governing the work to adapt to changes in society that require intervention by the productive university.

The increasing burden on universities has led to a relative decrease in the expenditure on higher education institutions and scientific research in Arab countries (Beni Salama, 2008). The amounts spent in these institutions are for administration employment and teaching and much less in the service of other basic tasks such as research development and community service (Ponomariov, 2008). Many interested parties explain the motives for abandoning the traditional university policy and transfer towards the adoption of a productive university that is: university's limited functions on the academic side, the employment of knowledge, funding and management of total quality, scientific research, and community development, global competitiveness and keeping pace with technology. Ramadan (2004) Abdul Mohtasib (2006) Al Hariri (2010). Inter-university and community-based production are important factors for providing and exchanging the necessary information for the formulation of public policies of the State, which distinguished advanced universities from the other ones. (Perkmann & Salter, 2012). Researchers demonstrated that the availability of information and data for industrial enterprises by centers of research contributes to identify the inputs needed for the quality of outputs with the vision and mission of the institution and to prepare properly the output serving the needs of the society and its institutions (William, Massy, Teresa, Sullivan & Christopher, 2013: 18).

The basic requirements to build a productive university

Walsh, Baba, Goto & Yasaki, 2008, Al-Shammari (2010), and Jamasi (2014) pointed out several basic requirements for achieving the University's productive requirements that are: Transform the role of the university from focusing on employment to focusing on the principle of job creation, and a real partnership with stakeholders from the public and private sectors and graduates, Transfer of technology and knowledge, which can be done through close contact with the advanced western and eastern universities in the fields of entrepreneurship. In addition, education based on creativity and innovation, the traditional methods of education based on repetition and memorization are no longer suitable for modern university education. They are a major obstacle to the construction of the leading productive university. The leadership which is capable of providing the material and moral potential of industrialists, the existence of conscious management of the importance of the orientation towards entrepreneurship and convinced of the mechanisms of building a generation of knowledge, and the transition to the knowledge economy, is one of the most important elements of building the productive university. Most of all, opening the door for admission in the productive university in training courses for different

types of students based on agreements concluded between the university and the local community.

As for the obstacles to the application of the concept of productive university: These obstacles are (administrative and functional aspects of the university, cultural, political, and media, and the relationship of the university with the local community (Boussada, & Boukker 2000). Generally, if the Jordanian universities seek to be productive universities that achieve their self-sufficiency, they must transfer from being traditional to productivity through achieving these domains:

- **Finance:** Logically, a university's philosophy is derived from its community demands, but the scarcity of its resources hinders its basic role such as providing qualified cadres who are well prepared scientifically and vocationally to join the work market through their ability to keep up with modern educational programs and develop their skills. Thus, universities should seek up-to-date economic and social development and decrease the gap between qualification and competencies of their students, and supply the work market with local cadres.
- **Scientific research**: Universities should reduce the teaching tasks and the administrative burdens on their cadre and offer them the opportunity to innovate and do research that meets the needs of different groups of the local community. This requires the university administrations to coordinate and exchange visits between scientists and researchers to keep up date with new scientific research and provide encouraging incentives for scientific research which ensure quality, competitiveness, and continuity in creativity and innovation.
- **Community service:** Universities support their community by providing useful programs and training courses that contribute to increasing the knowledge of human cadres who work in different sectors of production. Universities also provide the institutions with the latest scientific knowledge and advice in return for minimum fees paid to the university. On the other hand, universities seek to market their advanced technical expertise, which may not be available in the community, in the form of software used in computers, manufacture of drugs and vaccines, and advanced enzymes which the universities manufacture and sell to local institutions. Through these services, the university earns benefits for itself and its cadre.
- **Knowledge Employment:** Knowledge is the main source of intellectual capital in the process of strategic thinking that occurs through the employment of intuition and creativity. It also occurs through an integrated perspective of economic investment aiming to achieve a continuous environment development, encourage scientific research, and a community lifelong learning. On the one hand, productive universities should have the skills of marketing educational services which it provides through using the media and the provision of legislation and policies to support cooperation and coordination between universities and production sectors to gain benefits from innovations offered by

faculty members and students that contribute to solving many of the problems facing the society.

- **Technological challenges:** Universities can meet the technological challenges by creating the conditions and capabilities of local community institutions and facilitating the requirements of modern technology. On the other hand, universities are required to facilitate procedures and activate the dialogue between university employees of ICTs that contribute to the development of the university and solving its problems. The University must strive to invest and market knowledge responding to the economy and technology of knowledge through providing technological means and the participation of scientific networks to enable students and researchers access to research, books, magazines periodic and scientific research to be available for students at any time
- **Quality and Accreditation:** It is achieved by following the policy of decentralization, flexibility, transparency in administrative decision-making, and the policy of coordination between different colleges and the labor market to obtain the quality of advanced educational services for students which can help in providing suitable employment opportunities after graduation.

If a university achieves these fields, it can easily provide the requirements of product quality.

Previous studies

Several studies have been conducted in the field of productive universities, such as the study of (Alexandre&Cruz,2012) which aims at detecting the channels of interaction between the university and the productive sector in the companies of Cabo Verdi. The study examined the policy implications in terms of a sequential path of evolution of the channels from the existing interaction based on the formation of the most knowledgeable human resources. It used the experimental methodology, the study sample included developed countries, emerging economies, and developing countries. The results of the study concluded that African countries had limited interaction characteristics- this explains the use of a range of channels of interaction based on knowledge generation activities, which affects the links between them and requires the opening of channels of communication between developed and developing countries to increase their financial resources and optimize the investment of human resources to increase their productivity.

Brown-Luthango,(2012) conducted a study in South Africa on the role of the university in society, the partnership between the university and society, and discussed the experience of the Felipe Laboratory in Cape Town, South Africa in handling the difficulties and challenges it faced. The result indicated that the university had an active role in the field of local cooperation to find several solutions to the development challenges faced by society and that stakeholders should be informed of the time, effort, and investment required by this kind of cooperation and the difficulty of establishing and sustaining it between the university and society. Manal Institutional context within universities not only to facilitate and support but also for research,

which seeks to strengthen cooperation between universities and local communities and reward. Also, genuine cooperation requires a major transformation of the institutional context within universities not only for facilitation and support but also for rewarding research that seeks closer collaboration between universities and local communities.

Tal and Sarayrah (2013) conducted a study in Jordan aimed at identifying the degree of interest of Mu'tah University in the quality of its role in serving the local community in the light of the estimates of the faculty members. The descriptive approach was used. The sample consisted of (221) The study showed that the faculty members of Mu'tah University appreciated the importance of their university in the quality of its role in serving the local community to a medium degree, and there were no statistically significant differences between the average of the estimates due to the effect of the variables (type of college, academic level, years of experience).

Glover & Silka (2013) conducted a qualitative study on the cause of partnership between the community and the campus, the University of Maine. The qualitative approach was used by asking a set of questions. The results show that the research partnership between the university and the community provides an opportunity for universities to employ their basic knowledge in new ways, although some assume that the partnership between the university and society contradicts the basic function of universities - knowledge generation, this partnership may open up new opportunities for the development and advancement of knowledge, especially in the area of research partnerships between universities and the community, leading to innovations in knowledge generation.

Abu al Khair (2016) conducted a study that aimed to identify the availability of the requirements of the productive university. The descriptive approach was used. The study sample consisted of (140) workers, the questionnaire was used as a tool for the study. The results revealed that the availability of the requirements of the productive university came to a medium degree, and there were differences because of the variables of the requirements of the productive university due to the college variable and came in favor of scientific colleges.

Comments on the previous studies

The two researchers benefited from these studies in developing the tool to collect information, identify the results and compare them with the results of the current research and use the appropriate statistical treatments, to strengthen some views on the theoretical framework. Therefore, the current study differs from the previous ones in its attempt to identify the level of challenges facing the application of the productive university's philosophy in Jordanian universities and ways of developing it from the perspective of academic leaders for the academic year (2019/2018).

The researchers conclude that most Arab universities, including Jordan, follow the traditional methods of teaching based on repetition and memorization, which are no longer fit for modern university education based on creativity and innovation. This requires the adoption of the multi-

specialty educational system that allows the student the opportunity to multi-qualification and selection from various disciplines, which develop a wide range of horizons, broad thinking, linking ideas, and a multidisciplinary educational environment. These can contribute to reaching the idea that can be transformed into a productive project. However, university administrations often need skilled leaders who are aware of the importance of building a generation of knowledge transform towards the knowledge economy which is one of the most important elements of building a productive university.

Study problem

The main reason behind the concern of the philosophy of the productive university is the suffering of Jordanian universities from the imbalance between university jobs, increasing demand for teaching, increasing the financial burden of universities, low governmental support for universities, weak support for scientific research, and benefiting from research and studies carried out by faculty members or the postgraduate students as a result of the weak interaction between universities and community institutions. Finally, the decline in the outputs of the quality of education, all these challenges require the preparation and formulation of modern and innovative strategies, which bring about urgent changes in society with preserving its privacy, identity and culture and on the other hand, the need to provide additional financial sources substitute the government support, to be able to provide additional financial resources to support its various activities such as the establishment of a brochure for scientific research, endowment projects of the university, multi-field projects in cooperation with the private sector to support scientific research and innovation to change it into investment products, and adopt economic projects that benefit the community, factories and companies to contribute to the multiplicity of their products, including the material, moral, experiences, energies and human potentials of various disciplines and fields, and thus affect the building of the society culture and guide the idea of achieving its renaissance and comprehensive development. This is confirmed by the study of Tal & Sarayrah (2013), Brown-Luthango (2012), and Abul-Khair (2016) who assured the importance of the self-reliance of universities in their production and the reduction of their accumulated financial burdens through activating their partnerships with the community and its institutions. Hence the problem of the study is in the attempt to identify the challenges facing the application of the productive university's philosophy in Jordanian universities, and to reveal ways to develop them from the perspective of academic leaders by answering the following questions:

1. What is the level of challenges facing the application of the productive university's philosophy in Jordanian universities from the perspective of academic leaders?
2. Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the average level of challenges of facing the application of the productive university's philosophy in Jordanian universities from the perspective of academic leaders due to the variables (university type, college, academic grade, and job title)?

3. What are the proposed ways to develop the application of the productive university's philosophy in Jordanian universities from the point of view of academic leaders?

Study objectives

The study aims to identify the level of challenges facing the application of the productive university's philosophy in Jordanian universities and to reveal its relationship with variables such as university type, academic rank, type of college, and scientific qualification.

Significance of the Study

This study stems its significance from the importance of the subject it addresses and the objectives it seeks to achieve. The subject of applying the philosophy of the productive university is one of the modern topics that have witnessed increasing interest. Despite the importance of this topic, it still needs further study .This study differs from other studies in dealing with a significant topic that is applying the philosophy of the productive university in the Jordanian universities as they contribute to the development of universities, and their self-sufficiency, in addition to their role in influencing the behavior of faculty members and affect the degree to which they can search for ways to develop the university they belong to, and determine how the mechanism of interaction between members, university administration, students and community institutions. The study may also provide a full picture of the academic leaders on the current reality of the challenges facing the productive university in Jordanian universities.

Definitions of terms

A productive university: is a university that has self-reliance by carrying out some activities that support and complement its traditional functions (teaching, scientific research, and community service), through choosing majorities that meet the needs of the society and the faculty members, which link them to contemporary scientific and technological trends, and provide services such as training courses and consulting programs. It also benefits from the university's diverse facilities, and it employs the results of the scientific research done by students and faculty members in solving many of the local community problems, in partnership with specialized supporting institutions from the private sector. That leads to achieving financial resources that will benefit the university administration, its employees, and the local community.

The challenges of applying the philosophy of the productive university: it means the obstacles that limit the University's ability to implement the university's productive philosophy, such as the transformation from its traditional mission (teaching, research, and serving the community) to an economic institution that aims at profiting and marketing as a result of the vast amount of knowledge, technological development and the multiplicity of means of knowledge, which were measured through the responses of the sample of the study on the sections of the

study tool prepared for this study. It is defined as a set of methods used by university administrations to implement the philosophy of the productive university from the perspective of academic leaders in Jordanian universities, which was measured by the responses of the members of the study sample to the sections of the study tool prepared for this study.

Academic Leaders: Are those who are scientifically qualified and hold the following administrative positions: (Dean of the Faculty, Head of Academic Department), and teach at Jordanian universities**.**

Jordanian Universities: In this study, it means, Jordanian public and private universities belonging to the universities of the Northern Jordan Region: Jerash University, Irbid National University, Jadra University, Al-Bayt University, Science and Technology University, Yarmouk University (2019/2018).

Limitations and determinants of the study: human, spatial, and temporal determinants: This study is limited to academic leaders in Jordanian universities for the academic year (2019/2018). This study is limited to the answer of the academic leaders to the paragraphs of the questionnaire of the productive university's philosophy of (30) paragraphs, and the characteristics of the sociometric of reliability and validity.

Methodology

Study population: The study sample consisted of all the academic leaders (Dean of the Faculty, Head of Academic Department) in the public and private Jordanian universities (Yarmouk University, Science and Technology University, and he Hashemite University) and the private universities (Jadra University, Jerash University, Irbid National University) for the academic year (2018/2019) and (300) academic leaders according to the statistics of human resources for each university.

Table 1: Distribution of the characteristics of the study sample by independent study variables

Variables	categories	No.	Percent%
Types of university	public	117	78.0%
	private	33	22.0%
	Total	150	100%
Academic rank	professor	52	34.7%
	Co-professor	61	40.7%
	Assistant professor	37	24.7%
	Total	150	100%
Job title	Dean	43	31.2%
	Head of dep.	107	68.6%
collage	scientific	82	56.2%
	Humanities	68	43.8%
	Total	150	100%

Study sample (Figure 1)**:** The sample of the study consisted of (170) academic leaders (Dean of Faculty and Head of Academic Department), with 65% of the community of the mentioned

universities, after excluding the survey sample of (30) academic leaders from outside the study sample. A total of (150) valid questionnaires was retrieved from the questionnaires distributed by the researchers, as indicated in the following table

Study tool: The questionnaire consisted of (30) paragraphs, divided into six domains, to measure the level of the challenges of applying the productive university philosophy in the Jordanian universities, where the 5- point Likert scale was adopted by giving each paragraph one degree as follows: (Very high, high, Moderate, Low, Very Low) which representing digitally (5,4,3,2,1), respectively. Then the academic leaders were asked a question in the interview.

Standard of correction of the tool: The statistical model with the fifth degree of Likert scale has been adopted, for estimating the mathematical averages of the study instrument and its paragraphs. The statistical standard was adopted using the following equation:

Very low	Low	Moderate	high	Very high
1.00-1.80	1.81-2.6	2.61-3.40	3.40-4.20	4.20-500

The scale is calculated by using the following equation:

- (5)Minimum scale (1) / Number of required categories 0.80=5/1-5 (5) And then add the answer (0.80) to the end of each category.

The validity of the study tool and its reliability: The validity of the tool was confirmed. It was presented to several arbitrators with expertise and competent professors in Jordanian universities. The arbitration is based on (11) arbitrators of academic leaders and faculty members of the faculties of education in Jordanian universities. They were asked to read the paragraphs of the questionnaire to express opinions in the paragraph clarity, language structure, and their relevance to the field to which they belong, to add or delete, to formulate or propose paragraphs. Finally, their comments were taken into consideration about the appropriateness of the questionnaire to the level of the challenges of applying the philosophy of the productive university in the Jordanian universities, until the final copy was approved, which consisted (30) paragraphs. Two methods are used to verify the reliability of the study instrument by calculating the coefficient of consistency of internal consistency through the Alpha-Cronbach coefficient.

Table 2: Results of the reliability of the study dimensions in the Cronbach Alpha method for the exploratory sample

Scales and domains	**Internal reliability**	**Stability**
Knowledge employment	0.87	0.88
Finance	0.75	0.80
Scientific research	0.82	0.84
Community service	0,86	0.87
Technological Challenges	0.87	0.88
Quality and Accreditation	0.91	0.91
Total instrument	0.922	0.932

Table (2) shows that the consistency of internal reliability ranged between (0.75-0.91) and the stability was between (0.80-0.91). In the light of the indications of validity and reliability, the researchers found that the reliability results are acceptable to achieve the objectives of this study.

Study variables

Independent variables: university type, college, academic rank, and job title.
Dependent variables: the challenges of applying the productive university's philosophy, and proposed solutions
Statistical Processes: The arithmetical averages and (SD) are used to answer the first and second question, and the third question is frequency and percentages

Results

The following is a presentation of the statistical results reached after the analysis of the data of the study tool. The differences between the variables of the study and the nature of the relationship between the variables are revealed by answering the study questions.

Results of the first question and its discussion: **"**What is the level of challenges facing the application of the productive university philosophy in Jordanian universities from the perspective of academic leaders?"

To answer this question, the statistical averages and the (SD) were extracted to the estimates of the members of the study sample at the level of the challenges facing the application of the university's philosophy produced in Jordanian universities from the perspective of the academic leaders, as shown in the following table:

Table 3: The arithmetical averages and the (SD) of the elements of the challenges of applying the philosophy of the productive university philosophy are arranged in descending order

No.	Rank	domains	Mean	SD	Degree
2	1	Finance	3.72	.80	high
6	2	Quality and Accreditation	3.72	1.04	high
4	3	Community service	3.58	.92	high
3	4	Scientific research	3.48	.82	high
1	5	Knowledge employment	3.44	.78	high
5	6	Technological challenges	3.25	.79	moderate
Total instrument			3.53	.69	high

The results of this question indicate that the level of challenges facing the application of productive university's philosophy in Jordanian universities from the perspective of the academic leaders reaches an average of (3.53) with a (high) degree. The domain of financing ranks first with the highest average score of (3.72), followed by (Quality and Accreditation) in second place with an average of (3.72) and a (high) degree. In the second place, the (knowledge employment) domain obtains an average of 3.44, (3.25), with a standard deviation (.76) and a (moderate) grade. This result is due to the absence of the role of the university in the field of local cooperation to find solutions to the many development challenges faced by society in

partnership with stakeholders and to inform them of the time, effort, and investment required by this kind of cooperation, and the difficulty of establishing and sustaining it between the university and the society. A major transformation of the institutional context within universities not only for facilitation and support but also for rewarding research that seeks to foster closer collaboration between universities and communities.

This result is estimated by the study sample due to the challenges faced by the university administration in the various components of the tool. In the financing component, the university administration suffers from a double investment against the increasing demand for education without benefiting from university resources and facilities in investment and marketing for university administration. In the area of quality and accreditation, the results may be due to the suffering of the universities administration from the central decision-making and poor coordination between the university and community institutions. The field of technological challenges may be attributed to the weak participation of the private sector in providing support for the activation of technology institutions of higher education. Spreading the culture of a productive university requires a belief in the idea of a productive university and developing its strategic plans and programs. What distinguishes productive universities from traditional ones is their direct contact with productive institutions. This is demonstrated through different forms of cooperation such as expertise houses, business incubators, central labs, knowledge parks, and others.

The results of this study are correspondent with the results of these studies (Cruz, 2012 & Alexandre), Brown-Luthango (2012), and Glover & Silka (2013), which have largely demonstrated the challenges facing universities. This result differs from the result of the study of Tal and the Sarayra (2013), and the study of Abu al-Khair (2016), which showed a moderate degree of challenges faced by universities. Below is a detailed presentation of each item ranked in descending order by the arithmetic averages in the results as follows:

The first domain: Finance

Table 4: The arithmetical averages and the (SD) of the paragraphs of the domain (finance)

No	Rank	Items	Mean	SD	Grade
5	1	low volume of revenues resulting from investments provided by universities in response to the increasing demand for education	3.80	.91	high
4	2	Slack among administrative cadres drains the budget of universities	3.79	1.07	high
3	3	Poor investment by the university administration for its various facilities is an additional source of income for the university.	3.75	1.12	high
1	4	Weak marketing of university administration for its production services in the field of (scientific, consultant and services) to the different community institutions.	3.69	.98	high
2	5	University administration lacks development policies to reach a productive and pioneering university.	3.57	.97	high
		Finance	**3.72**	**.80**	**high**

The results indicate that the (finance) domain ranks first, with an average of (3.72), an SD of (80.) and (high grade). This is due to the challenges facing the university administration, in terms of the low volume of revenues resulting from investments provided by universities in response to the increasing demand for education and suffer from a significant administrative slack among employees. It may be also attributed to the lack of planning in the adoption of development and

investment policies to promote the utilization of the University's resources and facilities in partnership with community institutions, which differed from what Brown-Luthango (2012). That real cooperation requires a significant transformation of the institutional context within universities not only for facilitation and support but also for rewarding research that seeks to foster closer collaboration between universities and communities. Thus, it corresponds to the result of Obeidi (2012) study which indicated that the development and support of academic scientific research towards a productive university can provide them with other sources of funding.

The second domain: Quality and Accreditation

Table 5: The arithmetical averages and (SD) of the domain of (quality and dependence)

No.	Rank	Items	Mean	SD	Grade
3	1	The university administration adopts centralization in administrative decision-making	3.95	1.12	high
2	2	Poor coordination between university faculties and labor market sectors.	3.79	1.11	high
4	3	Poor participation of the staff in the application of quality requirements in higher education institutions.	3.70	1.12	high
1	4	The poor appropriateness of physical and human resources in institutions of higher education to the requirements of the application of total quality.	3.65	1.21	high
5	5	Poor quality of educational services provided to students at the university	3.25	1.30	high
		Quality and Accreditation	**3.72**	**1.04**	**high**

The results indicate that (the quality and accreditation) domain ranks second with an average of (3.72) and an SD of (1.04) and a (high) degree. This result is due to the challenges faced by the administration of universities which adopts centralization in taking decisions on administrative matters, and they suffer from a lack of coordination between the disciplines offered by university colleges with the needs of the labor market, leading to the large stagnation of disciplines that result in high unemployment among graduates, and the poor of coordination between different university faculties with other institutions and the labor market, and this is indicated by paragraphs (1,2) The last paragraph 5, which is also high, may be attributed to the lack of coordination between universities and the labor market, poor achievement of quality standards and accreditation in many disciplines, and poor quality of education services provided to university students. This high result differed from the result of the study of Abu al-Khair (2016) which came to a moderate degree.

Third domain: Community service

Table 6: The arithmetical averages and (SD) of the fields of (community service)

No.	Rank	Items	Mean	SD	Grade
1	1	Lack of academic promotion standards accredited at the university to the contributions of faculty members and academics in the service of the community	3.65	1.19	high
3	2	Ignore coordination to hold periodic meetings with community members to discuss issues of concern to the community	3.63	1.109	high
2	3	Poor coordination with productive institutions in the local community to carry out research and studies that are compatible with the labor market	3.60	1.09	high
5	4	Weak communication between the university and the local community and limiting the knowledge within the university without its association with society and its issues.	3.54	1.01	high
4	5	Weak communication with different channels from the local community to benefit from the results of the research that it does to serve the business sectors.	3.47	1.01	high
		Community service	**3.58**	**.92**	**high**

The results indicate that the (community service) domain has an average of (3.58), an SD (.92), and to a (high) degree. This result is due to the lack of academic standards for academic promotion at the university and ignoring coordination with community members to discuss issues of concern to the community, such as coordination in conducting research and studies that are compatible with the labor market, as shown in paragraphs (1,2,3). This result may be attributed to the limited knowledge within the walls of the university, without employing them to solve the issues of society and its problems, as stated in paragraphs (4.5), which comes at a (high) degree, which corresponds to the study of (Alexandre & Cruz, 2012), (Brown-Luthango, 2012), (Glover& Silka,2013) and Abu al-Khair (2016) where the challenges came with a (high) degree. This result contradicts the results of the study of Tal and Sarayrah (2013), and the study of Abu al-Khair (2016), which came to a (moderate) degree.

Fourth domain: Scientific Research

Table 7: Arithmetic averages and (SD) of the fields of scientific research.

No.	Rank	Items	Mean	SD	Grade
5	1	Increasing the teaching tasks and administrative burdens that constitute an obstacle to accomplishing research tasks that serve the community	3.57	1.14	high
1	2	Weak activation of the university administration specialized centers in terms of (training, consultancy, research, community service), to meet the needs of different groups of the local community	3.51	1.02	high
4	3	Lack of scientific research outputs in the production of new research products serving the local community	3.48	.94	high
2	4	The lack of coordination between the university administration and the exchange of visits between scientists and researchers to keep current what is new in the field of scientific research.	3.47	.96	high
3	5	Absence of incentives policy which encourages scientific research on continuity in creativity and innovation.	3.39	1.01	moderate
		Scientific Research	**3.48**	**.82**	**high**

The results indicate that (the scientific research) with an average of (3.48), an SD (.82), and a high degree. This result is due to the suffering facing faculty members from increasing the teaching tasks and administrative burdens as well as the weak activation of the university's administration specialized centers in terms of (training, consulting, research, community service), to meet the needs of different groups of the community. In addition, they show the lack of coordination between the university administration and the exchange of visits between scientists and researchers to keep current with what is new in the field of scientific research, and this is indicated in paragraphs (1, 2, 3, 4). As for the last paragraph, which comes to a (moderate) degree, it is attributed to the fact that the administrations of the universities face a challenge centered on the absence of encouraging motivation for researchers from the members and students of higher education to maintain creativity and innovation.

Fifth domain: knowledge employment

Table 8: The arithmetical averages and the (SD) of the elements of (knowledge utilization)

No.	Rank	Items	Mean	SD	Grade
1	1	The weakness of the universities administration is to market educational services provided by them through the mass media.	3.61	.87	high
3	2	Weak legislation and policies that support cooperation and coordination between universities and production sectors	3.51	1.01	high
2	3	The university administration lacks access to patents and innovations as well as working to implement them	3.47	.98	high
4	4	The weakness of the universities administration in identifying the urgent research problems needed by different community institutions	3.32	.96	moderate
5	5	Lack of university administration to work together to create new research products	3.31	1.06	moderate
		Knowledge employment	**3.44**	**.78**	**high**

The results indicate that (the knowledge-employment) has an average of (3.44), an SD of (.78). This high percentage, according to the sample of the study, is due to the weakness of the university administration to market educational services provided by universities through the mass media, since the legislation and policies of universities suffer from weak support of cooperation between universities and production sectors, which is characterized by the weakness in the use of patents and innovations (provided by leaders, faculty members, and postgraduate students) and working on applying and taking advantage of them as well as implementing them with different partners. To benefit from the financial revenue on all parties that achieve quality and productivity, and promote the university to rely on itself, as indicated by the following paragraphs (1,2,3), all of which come in a high grade, and this is because the university administration is confronting challenges faced in the field of Knowledge Employment. As for the paragraphs that come in a (moderate) degree, paragraphs (4.5) are attributed to the ability of the university administration to work collectively in identifying the research problems by scientific bodies that are prepared with the assistance of the student and the faculty member. But they are also suffering from the firm laws and legislations that support cooperation and coordination between universities and production sectors, the weak role of the media that markets creations and inventions of the university. This result differs from the result of the Abu al-Khair study (2016).

Sixth domain: Technological Challenges

Table 9: Arithmetical averages and (SD) of field (Technological challenges)

No.	Rank	Items	Mean	SD	Grade
3	1	Weak participation of the private sector in providing support for the activation of technology institutions of higher education	3.47	1.00	high
1	2	Weak financial allocations to provide modern technology	3.25	1.08	moderate
2	3	Lack of clear IT development policies.	3.23	1.03	moderate
5	4	Lack of performance standards through which the technological progress of their employees can be monitored.	3.17	.86	moderate
4	5	Weakness of the means of modern dialogue between university community through information and communication technology	3.12	.98	moderate
		Technological Challenges	**3.25**	**.76**	**moderate**

The results indicate that the technological challenges come in the last rank, with an average of (3.25) an SD of (.76,) at (moderate) degrees. This is estimated by the academic leaders due to the weak participation of the university administration in the private sector in providing the material

and human support necessary to activate the technology, because of the deficiency of its policies clarity that contributes to the development of technology, This is shown in paragraphs (1,2,3,4), which come between high and moderate, while the last paragraph, which comes to a moderate degree, may be attributed to the lack of coordination among university communities in using more effective means of dialogue through information and communication technology.

Table 10: The statistical averages and (SD) of the level of challenges facing the application of the productive university philosophy in Jordanian universities from the perspective of academic leaders attributed to variables (Type university, college, academic rank, job title).

Variables	Statistics	Knowledge employment	Finance	Scientific research	Community service	Technological challenges	Quality and accreditation	Total
Type of University								
Public	average	3.49	3.74	3.50	3.63	3.28	3.83	3.58
	No.	**117**	**117**	**117**	**117**	**117**	**117**	**117**
	deviation	.749	.856	.827	.983	.737	1.088	.723
private	average	3.27	3.67	3.44	3.38	3.15	2.35	3.38
	No.	**33**	**33**	**33**	**33**	**33**	**33**	**33**
	deviation	.889	.570	.807	.584	.827	.730	.517
Total	average	3.44	3.72	3.48	3.58	3.25	3.72	3.53
	No.	150	150	150	150	150	150	150
	deviation	.784	.801	.820	.915	.756	1.037	.687
Academic rank								
Professor	average	3.49	3.67	3.49	3.59	3.32	3.64	3.53
No.		**52**	**52**	**52**	**52**	**52**	**52**	**52**
	deviation	.731	.893	.778	.965	.816	1.233	.781.
Co-professor	average	3.50	3.80	3.50	3.68	3.27	3.81	3.59
No.		61	61	61	61	61	61	61
	deviation	.740	.848	.918	.976	.721	.985	.708
Asst. professor	average	3.28	3.68	3.45	3.39	3.11	3.69	3.43
No.		37	37	37	37	37	37	37
	deviation	.915	.556	.722	.709	730	.812	.488
Total	average	3.44	3.72	3.48	3.58	3.25	3.72	3.53
	No.	150	150	150	150	150	150	150
	deviation	.784	.801	820	.915	.756	1.037	.687
Job title								
Dean	average	3.57	3.83	3.80	3.70	3.39	3.05	3.72
No.		43	43	43	43	43	43	43
	deviation	.755	.784	.747	.874	.776	.959	.642
Head of dept.	average	3.39	3.68	3.36	3.53	3.19	3.59	3.46
No.		107	107	107	107	107	107	107
	deviation	.793	.807	.816	.930	.744	1.044	.692
Total	average	3.44	3.72	3.48	3.58	3.25	3.72	3.53
	No.	150	150	150	150	150	150	150
	deviation	.784	.801	.820	.915	.756	1.037	.687
Collage								
Scientific	average	3.47	3.80	3.54	3.52	3.21	3.65	3.53
No.		82	82	82	82	82	82	82
	deviation	.781	.916	.875	.970	.852	1.146	.755
Humanity	average	3.41	3.64	3.41	3.64	3.29	3.81	3.53
No.		68	68	68	68	68	68	68
	deviation	.792	.631	.773	.846	.626	.889	.600
Total	average	3.44	3.72	3.48	3.58	3.25	3.72	3.53
	No.	150	150	150	150	150	150	150
	deviation	.784	.801	.820	.915	.756	1.037	.687

The answer to the second question, which states: Are there statistically significant differences at the level of significance ($\alpha = 0.05$) between the average level of challenges facing the application of the productive university philosophy in Jordanian universities from the perspective of the academic leaders due to the variables (type of university, college, And job title)? To answer this question, the arithmetical averages and (SD) of the level of challenges facing the application of the productive university philosophy in Jordanian universities from the perspective of the academic leaders is due to variables (university type, college, academic rank, and job title) as shown in Table 10 above.

Table 10 shows an apparent variance in the arithmetical averages and (SD) in the level of the challenges facing the application of the productive university philosophy in Jordanian

universities from the perspective of academic leaders due to the variables (university type, college, academic grade, and job title) Quadratic analysis was used as shown in Table 11.

Table 11: Analysis of the quadratic variance of the effect of the variables of the study (type of university, college, academic rank, and job title) on the level of challenges facing the application of the productive university philosophy in Jordanian universities

Source of Variance	Areas	Sum of Squares	Df	Mean square	f	Statistical significance
Type of university	Knowledge employment	.013	1	.013	.033	.855
	Finance	.005	1	.005	.009	.926
	Scientific research	.001	1	.001	.002	.967
	Community service	.054	1	.054	.071	.790
	Technological challenges	1.222	1	1.222	2.764	.099
	Quality and accreditation	3.761	1	3.761	4.558	.034
	Total instrument	.023	1	.023	.058	.810
Academic Rank	**Knowledge employment**	**2.578**	**2**	**1.289**	**3.382**	**.037**
	Finance	.291	2	.146	.248	.781
	Scientific research	.401	2	.200	.369	.692
	Community service	1.817	2	.908	1.185	.309
	Technological challenges	1.873	2	.937	2.118	.124
	Quality and accreditation	3.154	2	1.577	1.924	.150
	Total instrument	.196	3	.098	.245	.783
Job title	**Knowledge employment**	**1.799**	**1**	**1.799**	**4.721**	**.032**
	Finance	1.929	1	1.929	3.283	.072
	Scientific research	**7.479**	**1**	**7.479**	**13.771**	**.000**
	Community service	.816	1	.816	1.064	.304
	Technological challenges	.129	1	.129	.292	.590
	Quality and accreditation	**5.946**	**1**	**5.946**	**7.254**	**.008**
	Total instrument	**2.334**	**1**	**2.334**	**5.836**	**.017**
Collage	**Knowledge employment**	**3.997**	**1**	**3.997**	**10.487**	**.002**
	Finance	.673	1	.673	1.145	.287
	Scientific research	**2.759**	**1**	**2.759**	**5.081**	**.026**
	Community service	.699	1	.699	.912	.341
	Technological challenges	.185	1	.185	.419	.518
	Quality and accreditation	**.535**	**1**	**.535**	**.652**	**.421**
	Total	**.311**	**1**	**.311**	**.777**	**.380**
Error	Knowledge employment	50.309	**132**	**.381**		
	Finance	77.582	132	.588		
	Scientific research	71.688	132	.543		
	Community service	101.211	132	.767		
	Technological challenges	58.385	132	.442		
	Quality and accreditation	108.205	132	.820		
	Total	**52.792**	**132**	**.400**		
Total	Knowledge employment	**1870.680**	**150**			
	Finance	2174.320	150			
	Scientific research	1919.520	150			
	Community service	2044.280	150			
	Technological challenges	1667.680	150			
	Quality and accreditation	2239.120	150			
	Total	**1942.469**	**150**			
Total	Knowledge employment	**91.510**	**149**			
	Finance	95.583	149			
	Scientific research	100.175	149			
	Community service	124.683	149			
	Technological challenges	85.254	149			
	Quality and accreditation	160.383	149			
	Total	**70.273**	**149**			

Table 11 below indicates that there are no statistically significant differences at the level of significance (α <0.05) for the level attributed to the variable of the university type except for the

field of quality and accreditation with a value of (4.588) and a significance level (0.034). This result is because public universities are characterized by the confidence of the local community, with the efficiency of its outputs. On the other hand, it is a free government university that is not profitable but seeks to provide service to the local community, Although in a few cases it demands some fees, their services are based on providing knowledge within the university without involving the local community in the investment of their products, which is one of the most important challenges that limit their ability to be self-reliant universities, they have the resources, facilities, and potentials that help them to invest, promote and upgrade productive universities by investing their research products and investing their public facilities for community partners.

Although private universities are often seen as profitable universities that seek to secure their human resources investment requirements, far from community service, they have a supportive role to government universities. For instance, the University of Jadra which is one of the private universities that has contributed to a real partnership with the local community in terms of reducing the fees of academic courses to compete with the price of public universities, and offers a lot of jobs for many of the graduate students who have received the degree of academic excellence, and scholarships from outside the university for students who met the scientific requirements. Previous studies did not show differences due to the university type variable.

There are no statistically significant differences in the level due to the academic level variable at the level of significance (α <0.05) for all fields and the total instrument, except for the field of knowledge employment with a value of (3.382) and a level of significance (0.037). The Post Hoc Comparisons using LSD did not show differences between academic grade categories. This result may be due to the position of the academic leader whatever his scientific rank is the leader in his work and the authority and power to implement the orders in partnership with the university administration. This result was consistent with the outcome of Tal and Sarayrah (2013).

There are no statistically significant differences at the level of significance (α <0.05) for the level attributed to the variable of the job title except for the field of knowledge employment, scientific research, quality and accreditation, and the total tool, at a significant level (0.000), the differences were in favor of a dean. This result is due to the powers granted to the administrative leader, and the role that leads to maintaining the status of his institution excellence and improve the quality of its services, and its powers granted to him also to employ and invest the results of research and studies obtained by faculty members and students. No studies have dealt with the job title.

There are no statistically significant differences at the level of significance (α <0.05) due to the variable Collage except for the field of employing knowledge and scientific research with a level of significance less than (0.05). The differences are in favor of the scientific college. This result is attributed to the role played by the scientific colleges in the employment of knowledge and scientific research, which focuses on the field of application, its research projects are often

development projects aiming at solving a problem on the ground if invested properly, they deal with equipment and devices and materials which can be controlled and in turn return to the university if invested with the high return, which contributes to the advancement of the university, to become self-reliant. Unlike the human faculties that deal with human elements which are characterized by temperament and emotional fluctuations, which make it difficult to control them with accuracy and consistency, despite the human aspect which is the main element motivating to do various research work. This result agrees with the result of the Abu al-Khair study (2016), which came in favor of scientific colleges. The result of this study differs from the result of the study of Tal and Sarayrah (2013), which showed no differences.

Table 12: Recurrence Table and Percentage of Sample (Academic Leaders) Descending by Frequency of Response to Question 3 (N = 150)

No.	Answer	Frequency	Percentage
1	The university administration should seek to re-line in achieving a balance between the volume of revenues resulting from investments provided by universities in return for the increasing demand for education	24	15.89%
1	The universities administration should contribute to the restructuring of management on an ongoing basis to ensure that there is no slack among the administrative cadres drain the budget of universities	23	15.23%
2	The university administration grants decentralize the administrative decisions that suit it.	23	15.23%
2	University administration should adopt development policies to be a productive and pioneering university.	22	15.22%
3	The university administration should follow a relevant policy of the two accord the material and human resources in the institutions of higher education to the requirements of the application of total quality.	17	11.26%
4	The academic promotion standards adopted at the university should be based on the contributions of faculty members, academics, and students in serving the local community	15	9.93%
5	Minimize teaching tasks and administrative burdens that are an obstacle to the achievement of research tasks that serve the community	14	9.27%
6	The University administration should place the marketing of educational services among the priorities that universities provide through the media and communication.	10	6.62%
6	The universities administration should enhance the participation of the private sector in providing the necessary support for the activation of technology institutions of higher education	10	6.62%
The total answers		150	100.00%

To answer the third question, which states: “What are the proposed ways to develop the application of productive university philosophy in Jordanian universities from the perspective of academic leaders?”, the frequency and percentages of the responses of the sample were extracted to this open question, as shown in Table 12 above. Following the responses of the members of the sample that the highest percentage attained in paragraphs (1.2) on the paragraph stated (The university administration should seek to re-line in achieving a balance between the volume of revenues resulting from investments provided by universities in return for the increasing demand for education), and the paragraph, (The universities administration should contribute to the restructuring of management on an ongoing basis to ensure that there is no slack among the administrative cadres drain the budget of universities) With a frequency (24) and a percentage (15.89%), followed by the paragraph (grant the university administration to decentralize the administrative decisions that suit it) with frequency (23) and percentage of (15.23%), and the

answer (University administration should adopt development policies to be a productive and pioneering university) with the frequency (22%) and by percentage (15.23%). The rest of the responses ranged between (6.62% -11.26 %).

The researchers attribute this finding to the fact that these proposals correspond to the challenges that limit the productive university's philosophy in Jordanian universities to be ranked productive universities which depend on their investment and funding their research projects in partnership with the local community. This high response is due to the first and second paragraphs, as indicated in the frequency table and response to the students' responses which are the universities administration should contribute to the restructuring of management on an ongoing basis to ensure that there is no slack among the administrative cadres drain the budget of universities and the university administration should seek to re-line in achieving a balance between the volume of revenues resulting from investments provided by universities in return for the increasing demand for education.

This is evident that one of the most prominent challenges facing the universities administration is the slack of career among its administrative cadres, in addition to weak strategic planning to achieve a balance between the inputs of the university and its outputs. Which is followed by the third paragraph (The university administration grants decentralize the administrative decisions that suit it) and paragraph (the university administration should follow a relevant policy of the two accord the material and human resources in the institutions of higher education to the requirements of the application of total quality) that came at a rate of (15.23%) and to a high. This result may be attributed to the fact that one of the most important proposals that contribute to the preparation of universities as productive universities is the adoption by the university administration of the policy of decentralization in decision-making so that they make appropriate decisions and ensures quality and accreditation. In the last rank come the paragraphs, (The University administration should place the marketing of educational services among the priorities that universities provide through the media and communication.), and the paragraph (The universities administration should enhance the participation of the private sector in providing the necessary support for the activation of technology institutions of higher education) at a percentage of (6.62%). The researchers attribute this result to the importance of activating the field of marketing of its administrative, educational, and research services in partnership with local community institutions. This finding is correspondent to the study of (& Alexandre& Cruz, 2012), (Brown-Luthango, 2012) and (Glover & Silka, 2013).

Study proposals

The study suggests that to achieve the philosophy of a productive university these tips should be followed:

- Believing in non-contradiction between the concept of the productive university and the general concept of the university and its basic functions (teaching, scientific research, community service).

- The concept of a productive university should be linked to its cooperation with the local community institutions and the private sector in solving the problems of the local community by implementing its programs.
- Enhancing research partnership between the university and the community by allowing universities to select, generate and employ knowledge, which may open up new opportunities for knowledge development and use of research knowledge.
- Removing the barriers between the university as a focal point for openness and a ray of scientific and cultural knowledge, and between the surrounding profitable and productive institutions.
- Setting standards and measures that determine the academic capabilities of the higher education students, which is considered a source of income for the university. Which reflects positively on the quality of education.
- To encourage the university administration to get donations and sponsorship from the persons who can provide support for the funding to the university and its scientific research.

Recommendations

Based on the findings of the study, the researchers recommend the following:

- The administration of the universities should attempt to follow the policy of decentralization in making administrative decisions and reducing the bureaucracy in the legislations and laws with the investors from the local community, taking into consideration the administrative restructuring on an ongoing basis to ensure that there is no slack among the administrative cadres.
- The university administration should follow clear criteria and principles in terms of promotion, attracting students, or marketing investment inside and outside the university.
- To activate the investment of various channels of communication, media, dialogue, and others, in enhancing the participation of the private sector in providing the necessary support to activate technology for higher education institutions.
- Enhance cooperation between the productive university and the community within the university, as well as facilitation and support, should be turned into a research grant that seeks to strengthen cooperation between universities and local communities and contribute to solving their problems.

- Benefiting from successful experiences of a productive university in both Arab and foreign countries, which adopted the university's productive philosophy in addition to making the best use of the available resources and resources.

Conclusion

Following the previous results the level of challenges facing the application of productive university's philosophy in Jordanian universities from the perspective of academic leaders come at a high degree, this indicates that the extent of the challenges facing Jordanian universities is represented in:

1. ***Finance:*** It ranked first and comes at a high degree indicating that funding is an important challenge because of the low volume of income resulting from the investments provided by universities compared to the increasing demand for education. This also results from different reasons such as career slack among administrative cadres that depleting the budget of the university. Universities lack the marketing skills of their productive services in these sectors (scientific, consulting, and services) and they cannot also implement developmental strategies that enable them to be productive universities through marketing their productive services in the field of (scientific, advisory and services) to the different institutions of society and lack of development policies to reach a productive and pioneering university.

2. ***Quality and accreditation:*** It ranks second, it ensures that the applying of the productive university's philosophy is facing challenges due to the university's adoption of the centralization in administrative decisions, weak coordination between university faculties and sectors of the labor market, and the low participation of workers in the application of quality requirements institutions of higher education. The poor quality of educational services provided to students at the university also forms a difficulty for the university.

3. ***The challenge of community service*** comes third, which means that university administrations do not approve promotion as a criterion in the service of society but use educational research for promotion purposes only. In addition, the universities administration neglects to communicate and to interact with the community to identify their problems and challenges as well as it lacks a policy of coordination with the productive institutions which contributed to the weakness of the university's communication with the local community. Consequently, it limits the knowledge within the university without its association with society and its issues.

4. As for ***the challenge of scientific research and the employment of knowledge***, the increasing teaching tasks and administrative burdens form a challenge to accomplish the research tasks that serve the community, the weak activation of the university administrative centers specialized in terms of (training, consulting, research, community service) did not enable it to meet the needs of different groups of the community because

of the weak policies and legislation of the university administration to benefit from patents and innovations and to promote their marketing to local community institutions.

5. Finally, ***technological challenges***, which are the least challenges faced by universities according to the sample of the study. The results indicate that universities administration suffers from weak participation of the private sector which has a significant role in providing support for the activation of technology institutions of higher education. These major challenges have contributed to hindering the progress of Jordanian universities and limit their ability to be self-sufficient universities.

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An Investigation of the influences of Organization Communication Patterns upon Team Effectiveness among Private Universities in Thailand: A Multivariate Analysis

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ABSTRACT

This research project was established upon current literature and research findings regarding the relationship between communication patterns and team effectiveness among organizations. This project aimed to delve in-depth into reported causal relationships between the three organizational communication patterns namely vertical, horizontal and diagonal communication flows or patterns upon team effectiveness measured in three dimensions: task accomplishment, members' satisfaction with the team, and members' intention to stay on with the team. A questionnaire was utilized to collect data from personnel in the top ten private universities in Thailand. Eight hundred and seventy-six completed sets of usable questionnaires were gathered. A multivariate statistical analysis via Multiple Regression Analysis supported that horizontal, diagonal, and vertical communication patterns had positive influences on overall team effectiveness. An in-depth analysis revealed that horizontal communication had the highest influences on two dimensions: intention to stay with the team and team members' satisfaction. Diagonal communication had the highest influence on task accomplishment. Vertical communication's influence ranked the second regarding task accomplishment but the least on satisfaction and team maintenance.

Keywords: Organization Communication, Teamwork, Vertical Communication, Horizontal Communication, Diagonal Communication

Introduction

Teamwork is essential for the modern-day management of organizations (Daft, 2013). Personnel in higher education institutions have to work in cooperation with each other to deliver quality education to students and other stakeholders. Educators have to cross their comfort boundaries by designing interdisciplinary courses and activities which complement each other to provide an integrated teaching and learning system as in the case of STEM (Science Technology Engineering Mathematics) education (Hom, 2014). In this regard, communication is an essential ingredient that functions as the linkages among personnel in an organization, within a team, across a team, and with the management (Bateman, Snell, and Konopaske, 2016). This research project aimed to investigate the influence of organizational communication patterns classified into vertical, horizontal, and diagonal communication patterns upon team effectiveness in the dimensions of task accomplishment, member satisfaction, and team maintenance or intention to stay with the team. This research project provides an insight into the comparative effectiveness of each communication pattern upon team effectiveness in each dimension.

Literature

Teamwork

Organizations in the modern world emphasize the efficiency of work. Adam Smith describes in his infamous book *Wealth of the Nation* that division of labor could increase operational efficiency (Smith, 2015). The division of labor into smaller specialized work units improved organizations' efficiency. Since then, the organization's efficiency had increased many folds. Unfortunately, the separation of work into small units created gaps among the workforce and eventually deteriorated productivity which was against the original objective of the division of labor. In the past couple of decades, teamwork was introduced into the organizational context to amend these gaps. Efficiency as a team, rather than individual, had become an important organizational practice (Paguio, 2006).

Teamwork is comprised of a group of individuals whose tasks and responsibilities were interdependent (Cohen and Bailey, 1997). The teamwork involved more than one individual working together towards the same goals with the same direction (Hackman, 1987). Working as a team had introduced various advantages such as shared experience and world view, combined strength, and others. (Rushmer, 1997). Teamwork could promote organizational processes (Teare et al., 1998; Woodcock, 1989). Some advantages of teamwork included more work accomplishment and members' satisfaction. Gemuenden and Hoegl (2001) reported the relationship between teamwork quality and team performance, work satisfaction, and learning among software developers in Germany. Pineda and Lerner (2006) also supported the relationship between teamwork and goal attainment, satisfaction with the team experience, and

improvement in skills and understanding of teamwork among 4th-year students in the business faculty. However, an analysis of the effectiveness of communication patterns upon teamwork dimension was inadequate.

Teamwork and communication

Communication was an essential tool that connects people. It bridged personnel together and provided various benefits to organizations. Hargie (1996) reported the relationship between communication and organizational innovation. Abu Bakar, Mustaffa, and Mohamad (2009) supported the relationship between communication and team-oriented commitment. Luo, Song, Gebert, Zhang, and Feng (2016)'s research project proved the relationship between a leader's communication style and a subordinate's affective commitment to change. Zuech and Finley (1996) found that customers were satisfied when members of the organization work in a team.

Individuals working in a team need to coordinate to attain the organizational objectives. In this regard, communication was an important tool for good coordination. Gemuenden and Lechler (1997) and Hoegl and Gemuenden (2001) supported that communication positively and significantly influenced the quality of teamwork. Ejohwomu, Oshodi, and Lam (2017) suggested effective communication as one of the determinants for performance. Communication was an important ingredient of team operation (Gemuenden and Lechler 1997; Hoegl and Gemuenden, 2001) and influenced construction project's team performance (Ejohwomu, Oshodi, and Lam, 2017). Hunt (2014) reported that communication directly affected nurses' satisfaction, morale, and effectiveness. Poor communication created negative feelings and misunderstanding, and eventually bad services among practice nurses. Carrière and Bourque (2009) found that communication satisfaction mediated the relationship between internal communication practices and job satisfaction and affective organizational commitment. Effective communication enabled exchanges of data and knowledge among personnel. Hence, it helped to promote and enhance collective contributions which improve the productivity of organizations.

Cohen and Bailey (1997) synthesized a couple of hundred articles and suggested team effectiveness involves three dimensions: task results, the attitude of team members, and behavioral results. Adams, Simon, and Ruiz (2002), DiSilverio (2002), and Huusko (2007) also supported the notion of performance, attitude, and behavioral dimensions as the results of teamwork. Working in a team resulted in more task attainment, members' satisfaction, and team maintenance (Cohen and Bailey, 1997; Pina, Martinez, and Martinez, 2008). Communication referred to the process that individuals transmit and understand shared meaning (Robbins and Coulter, 2017). There were various models of communication but most suggested communication comprises of 6 components namely senders, messages, channel, receiver, feedback, and noise as shown in figure 1.

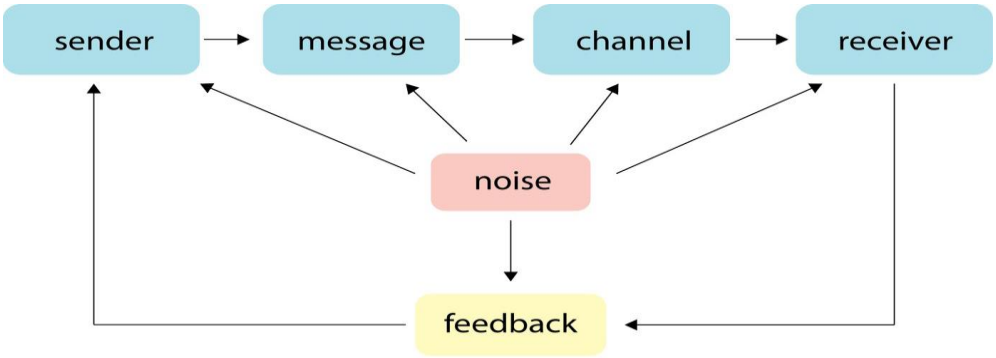

Figure 1: Communication model
Adapted from: Robbins and Coulter (2017)

Organizational Communication

Organizational communication referred to the communication within an organization whereby hierarchical position plays an important part ineffective communication. In this regard, the hierarchical positions of senders and receivers of the message as well as the direction of the communication needed to be carefully studied (Bartels, Peters, Jong, Pruyn, and Molen, 2010). Communication in an organization served 4 major functions: control members' behavior, share information, express emotion, and motivation (Scott and Mitchell, 1976).

The organizational communication flow pattern which was the framework of this research project was categorized into three patterns: vertical, horizontal, and diagonal communication (Robbins and Coulter, 2017).

Vertical communication (figure 2a) included downward and upward communication flow. It referred to the transmission of messages from top management downward to subordinates following the chain of command in the organization and vice versa. The flow of communication could be both downward and upward. Top management communicated strategies, policies, rules, and other commands to their middle managers and subordinates to instruct subordinates to operate. Subordinates reported work results and other information upward to their higher-level managers and eventually to the top management. In the certain organizational context, such as repeated tasks, one-way communication occurred when top management closed down the upward communication channel. They instructed subordinates on what to do and expect obedience. In some organizations, top management was open and listened to comments and feedback from subordinates, hence, the communication direction became two-way. Upward communication had various advantages (Gary Crap, 1990). The management obtained feedback of the operation regarding the policy and plans. Furthermore, the management obtained information regarding the effectiveness and obstruction in subordinates' work. Next, upward communication assisted as ventilation for employees to relieve their stress through sharing their problems with their leaders. Finally, upward communication allowed employees to participate and commit to the organizations' activities.

Horizontal communication (figure 2b) was the communication among personnel in the same hierarchical level in the organization. This pattern of communication did not follow the chain of command but was embedded in the organizational structure. Those who reported to the same

boss were allowed to communicate with each other. For example, managers at the same level in the organization structure such as production manager and procurement manager reported to the same boss, i.e., factory manager, horizontal communication occurred if the organization promote communication among managers who had the same boss. However, this pattern of communication did not allow the individual to communicate across organizational levels. Lateral or horizontal communication was the exchange of information among subordinates across their functional department. Employees used this channel to coordinate their tasks across departments. Lateral communication helped to reduce the time used in transmitting information by crossing the chain of command. The coordination among departments could be performed quickly. Moreover, sharing of information helped to create efficiency in tasks. Employees shared common understanding through lateral communication

Diagonal communication (figure 2c) involved communication across organizational levels and work units. Some organizations promoted communication among personnel without regard to the organization's structure. This type of communication was generally performed through an informal channel. The management supported the communication across work units. Relationships within the organization were promoted.

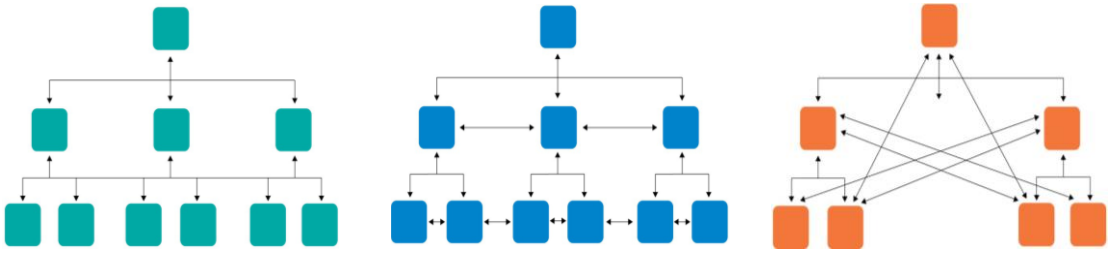

Figure 2a Figure 2b Figure 2c

Figure 2 Communication patterns

Barriers to communication

The transmission and understanding of messages could be disrupted in all components of the communication process. Robbins and Coulter (2017) suggested communication barriers included filtering, participants' emotions, information overload, selective listening, and perception capability of communicators.

Filtering was the manipulation of information to make it appears favorable. Filtering was common in organizations. Subordinates had to screen and transfer only information the management would like to know. Sometimes, they chose to communicate only information that made them look good in the eyes of the supervisors. In the meantime, the management might also deliberately filtered some information they think would create negative reactions from the subordinates.

Emotion could affect the interpretation of the messages. An upset receiver tended to interpret messages negatively while a happy receiver tended to interpret messages positively. Hence, the intended meaning of the messages might be distorted.

Human brains had a limited capacity to receive and digest information. When receivers have too much information they could digest, they would just ignore the information. There was a tremendous amount of information flowing in organizations on any single day of work. Too much information obstructed the communication process in the workplace.

Some receiver selected to receive and interpreted parts of the messages that he/she wanted to receive but ignored to process other parts that he/she was not interested in.
The messages might be distorted or misunderstood based on the differences between senders' and receivers' frames of reference. People did not have perfect perceptual organs, for example, some might be short-sighted, some might tend to interpret the meanings of messages in certain manners. The mismatch between senders' and receivers' tendency to perceive things around them could distort the interpretation of the message sent and received.

Research methodology

This research project aimed to elicit empirical data to test the influence of each type of communication pattern upon teamwork efficiency dimensions among the top ten private universities in Thailand.

Population and Samples

The Office of the Higher Education Commission categorized universities in Thailand into 5 categories: Public universities, Public autonomous universities, Rajabhat Universities, Rajamangala Universities of Technology, and Private universities (Bureau of International Cooperation Strategy, Office of the Higher Education Commission, 2019). Public universities are allocated annual budgets from the government and administered under a bureaucratic system. Public autonomous universities manage their administrative structure and budgets. Rajabhat Universities is a group of former Rajabhat Institutes which were upgraded from teacher training colleges and community development. Rajamangala Universities were upgraded from Rajamangala Institutes of Technology colleges which formerly offered technology and vocational education. The four categories of the university above are, one way or another, under government supervision through parts of the financing and subsidies. The last category of a university in Thailand is the private universities which do not receive a budget allocation from the government and is controlled under the Private Higher Education Act. As of 2018, there were 11 public higher education, 23 autonomous universities, 38 Rajabhat Universities, 9 Rajamangala Universities of Technology, 1 community college with 20 campuses, and 75 private higher education institutions (HEI). Out of these 73 private HEIs, 42 are universities, 11 are institutions and 20 are colleges (Bureau of International Cooperation Strategy, Office of the Higher Education Commission, 2018).

Although beginning to transform, public universities are governed by a strong bureaucratic system, communication patterns tend to be downward and one-way. Moreover, team structure is hardly performed under the government protocol. Hence, this study, attempting to investigate the teamwork effectiveness, focused on private universities. The latest number reported by the Office of The population in this study was 11,775 personnel working in private universities in Thailand (Office of the Higher Education Commission, (2019). The required sample size at a confidence level of 95% was 373 samples. Data were collected from the top 10 private universities in terms of numbers of personnel. Private universities with the top ten highest numbers of personnel were selected. Altogether these ten universities accounted for 6,681 personnel or 56.7% of the total personnel of all 73 private universities. These ten universities had more than 400 personnel so they had a large organizational structure to exhibit various types of communication flow and teamwork. The remaining personnel was scattered in 63 HEIs or about 80 in each HEI which makes their organizational structure too small for the objective of this study. One hundred sets of questionnaires were distributed to personnel in each of these 10 private universities through the human resources department. Eight hundred and ninety-two sets of questionnaires were returned. After the editing and cleaning of data 876 sets were usable.

Data Collection Instrument

The questionnaire consisted of 3 parts.

Part I asked the respondents to provide their demographic data.

Part II elicited the respondents' perceptions regarding the pattern of communication in their work unit. The items were derived from the definitions of vertical, diagonal, and horizontal communication patterns. The scale consisted of 5 items for each pattern of communication. Respondents were asked to rate their perception regarding each item ranging from 5 = highly agree to 1 = disagree. Examples of items in the vertical communication pattern section included "My boss informs me information relevant to my operation" and "My boss clarifies my work unit objectives to me". Examples of items in the diagonal communication pattern section included "My boss motivates me to communicate with other work units" and "My boss organizes activities to unite people in the organization. Examples of items in the horizontal communication pattern section included "I usually exchange opinions with my colleagues" and "My boss shows me the importance of communicating with colleagues in the same level".

Part III elicits the perceived teamwork efficiency. Teamwork efficiency was measured via task accomplished, members' satisfaction with the team, and team maintenance. Each dimension was measured by a 5-item scale ranging from 5 = highly agree to 1 = highly disagree. Examples of items measuring task accomplishment were "Team members meet the standard that the organization requires" and "Team members control the budget effectively". Examples of items

measuring members' satisfaction with the team included "Team members are satisfied with the job" and "Team members are satisfied with the social relationship within the team". Examples of items measuring team maintenance included "Team members respect each other" and "Team members assist each other in work".

The items in part II and part III were assessed by 3 experts in the area of communication and human resources development for content and construct validity. IOC was calculated. Some items were removed. Only items with the Index of Item Objective Congruence (IOC) more than 0.50 were retained. Furthermore, the remaining items were included in a scale and pilot tested with 30 samples. Some items were excluded to improve the reliability of the scales. The final Cronbach's alphas were .834, .839, and .827 for vertical, upward, and diagonal communication respectively. Cronbach's alphas for task accomplishment, members' satisfaction with the team, and team maintenance were .834, .839, and .853 respectively. The reliability tests confirmed that all scales were reliable (Cronbach's alpha > .70).

Results

The respondents (n = 876) comprised of 485 females (55.5%) and 390 males (44.5%). 322 (36.8%) respondents were between 31-39 years old. 234 (26.7%) respondents aged between 40-49 years old. 230 (26.3%) were less than 30 years old. 90 (10.3%) respondents were more than 50 years old. The positions ranged from non-administrative (402 respondents or 45.9%), middle administrators (370 respondents or 42.2%), and top administrators (104 respondents or 11.9%). The respondents had work experience ranged from less than 2 years (18.5%) to more than 10 years (30.8%). Samples were obtained from private universities with the highest numbers of personnel. The numbers are shown in table 1 below.

Table 1: Universities with Highest Numbers of Personnel and Samples

University	Total no. of Personnel*	Samples frequency	Samples %
Assumption university	871	100	11.43
Bangkok university	535	100	11.43
Dhurakij Pundit university	471	100	11.43
Bangkok Thonburi university	739	75	8.57
Huachiew Chalermprakiet university	521	100	11.43
Kasem Bundit university	519	81	9.26
Rangsit university	1252	100	11.43
Siam university	581	70	7.89
Sripatum university	687	76	8.68
University of the Thai Chamber of Commerce	505	74	8.45
Total	6681	876	100

*Data from Office of the Higher Education (2019)

The means and standard deviation of the patterns of communication are exhibited in table 2.

Table 2: Means and standard deviation of the pattern of communication at the university

Communication pattern	$\bar{X}$	Std. Deviation
Horizontal	4.251	.4703
Diagonal	4.166	.4723
Vertical	4.147	.4623

The respondents reported they perceived their work units mostly utilized horizontal patterns ($\bar{X}$ = 4.251, SD = .4703) followed by diagonal communication pattern ($\bar{X}$) = 4.166, SD = .4723) and vertical communication ($\bar{X}$ = 4.147, SD = .4623) respectively.

Teamwork effectiveness was measured through 3 dimensions: task accomplishment, members' satisfaction with the team, and intention to remain members of the team. The means and standard deviations of team effectiveness and each dimension are shown in table 3 below.

Table 3: Means and standard deviation of team effectiveness

Team effectiveness	$\bar{X}$	Std. Deviation
task accomplishment	4.254	.4712
members' satisfaction	4.205	.4997
intention to remain a member	4.190	.4846
Team effectiveness	4.216	.4534

The personnel perceived that among the three dimensions of team effectiveness, task accomplishment was rated highest ($\bar{X}$ = 4.254, S.D. = .4712) followed by members' satisfaction working with the team ($\bar{X}$ = 4.205, S.D. = .4997) and intention to maintain the membership of the team ($\bar{X}$ = 4.190, S.D. = .4846). The total team effectiveness was 4.216 (S.D. = .4534).

The stepwise multiple regression analysis was utilized to test the ability of the communication patterns to predict team effectiveness. Results revealed that the variances of the three independent variables: horizontal, vertical, and diagonal communication patterns could explain 71.1 % (r^2 = .711) of the variance in the dependent variable, i.e., perceived team effectiveness. The Adjusted R Square was .710, the standard error was .2440. The ANOVA analysis of the multiple regression lines is shown in table 4.

Table 4: ANOVA analysis of the multiple regression line[a]

	Sum of Squares	df	Mean Square	F	Sig.
Regression	127.913	3	42.638	716.082	.000[b]
Residual	51.921	872	.060		
Total	179.834	875			

a. Dependent Variable: totalT
b. Predictors: (Constant), Horizontal, Vertical, Diagonal

The ANOVA analysis tested the significance of the prediction power of the regression line. The result confirmed that the three independent variable, together, could predict the dependent variable significantly ($F = 716.082$, $df = 3, 872$, $p < .001$). The standardized beta coefficients of all three patterns of communication were significant as shown in table 5.

Table 5: Standardized and unstandardized beta coefficients of the regression analysis

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.434	.082		5.268	.000
Diagonal	.324	.030	.338	10.982	.000
Horizontal	.372	.026	.386	14.146	.000
Vertical	.205	.029	.209	7.024	.000

a. Dependent Variable: total Team effectiveness

The standardized coefficients of horizontal communication was .386 followed by diagonal communication (beta = .338), and vertical communication (beta = .209) respectively. All beta coefficients were statistically significant at the .001 level.

The unstandardized beta coefficients of all three patterns of communication were significant. The unstandardized coefficients of horizontal communication was .372 followed by diagonal communication (beta = .324), and vertical communication (beta = .205) respectively. All beta coefficients were statistically significant at the .001 level. The prediction formula is:

Team effectiveness = .434 + .372 (horizontal communication) + .324 (diagonal communication + .205 (vertical communication)

The results of an investigation of the influence of the pattern of communication on each dimension of team effectiveness are shown in table 6.

Table 6: A comparison of the standardized beta coefficients of the patterns of communication upon each dimension of team effectiveness

	task accomplishment	satisfaction	maintenance	Team effectiveness
horizontal communication	.186	.334	.438	.386
diagonal communication	.413	.316	.220	.338
vertical communication	.310	.206	.194	.209

Horizontal communication patterns showed the highest influences upon team effectiveness with the standardized beta of .386 followed by diagonal (.338) and vertical (.209) communication patterns accordingly. The standardized beta coefficients of horizontal communication upon task accomplishment, members' satisfaction with the team, and intention to remain a member of the

team were .186, .413, .310 respectively. The standardized beta coefficients of diagonal communication upon task accomplishment, members' satisfaction with the team, and intention to remain a member of the team were .206, .316, .334 respectively. The standardized beta coefficients of vertical communication upon task accomplishment, members' satisfaction with the team, and intention to remain a member of the team were .194, .220, .438 respectively. All beta coefficients were statistically significant at the .001 level.

Discussion

Findings uncovered several interesting new insights about the communication process among the top ten private universities in Thailand. The means of the perceived communication pattern revealed that personnel perceived these universities utilized more horizontal than diagonal and vertical communication patterns. This implied that the management communicated downward and received upward communication less than other channels. It is very likely that, in general, the management preferred work units to operate in cooperation with each other rather than centralizing the tasks. However, the management supported less diagonal and vertical than horizontal communication implied that the person perceived the management wanted them to observe the chain of command rather than freely communicated with a co-worker in other hierarchical levels. In short, personnel communicated with colleagues at the same level rather than others at different levels be it cross or direct in the chain of command.

The multiple regression analysis results revealed that overall team effectiveness could be predicted most by horizontal followed by diagonal and vertical communication patterns respectively. Diagonal was reported as being used less than horizontal. The horizontal communication style had the most effect and universities had utilized it appropriately. The findings conform to research projects of Hunt (2014)'s who reported that communication directly affected nurses' satisfaction, morale, and effectiveness. Furthermore, Gemuenden and Lechler (1997) and Hoegl and Gemuenden (2001) also supported the relationship between communication and team effectiveness.

Further in-depth analysis of the influences of communication patterns on each dimension of team effectiveness revealed another new and interesting insight. Team maintenance was influenced most by horizontal communication patterns. The influence was highest among all influences between communication patterns and the dimensions of team effectiveness. Task accomplishment was influenced most by diagonal communication. Satisfaction with the team was most influenced by horizontal communication. These findings suggested that communication styles had different effects on team effectiveness.

Horizontal communication patterns yielded members' satisfaction and maintenance with the team but the lowest task accomplishment. The overall effect on team effectiveness was the result

of the influences upon satisfaction and maintenance which were the human or soft side of teamwork (Bateman, Snell, and Konopaske, 2016). Working in teams could likely enable personnel to communicate to colleagues in other work units and created a cooperative atmosphere and collaboration within the workplace (Gratton and Erickson, 2007). Colleagues at the same level might act as a comrade who provides supports and consoles for each other (Salas, Shuffler, Thayer, Bedwell, and Lazzara (2014). In this regard, Awad and Alhashemi (2012) and Bakar, Mustaffa, and Mohamad (2009) confirmed the relationship between communication and team members' commitment to the team and organization. Moreover, personnel in different work units could likely provide required supports, information-wise and workflow-wise, beyond the scope of authority of each individual's unit, hence, they feel more content with the coordination. Furthermore, personnel in the same hierarchical level might share common understandings about the organization and have an equivalent level of competency so they feel satisfied communicating to people at the same level and intend to stay with the universities further.

Task accomplishment was influenced most by diagonal communication. The results supported that communication with colleagues in other work units enhances cooperation and collaboration (Bateman, Snell, and Konopaske, 2016), hence, resulted in higher task accomplishment. Communication across the work units led to better coordination of resources and efforts, hence, a team could attain task accomplishment more than horizontal and vertical communication patterns. Personnel in different levels and work units might possess viewpoints and information as well as work experience which can assist the work of each other. However, working with colleagues in other work units and hierarchical levels might face diversity problems and some conflicts, hence the effects on satisfaction and team maintenance were lower than utilizing horizontal communication patterns.

Vertical communication has the second-highest effect on task accomplishment. Probably upward and downward communication helped to relay task-wise information appropriately. Personnel in direct higher positions have more knowledge and experience in the work area so they could instruct and supervise to make the accomplishment of the work. Folkman (2016) confirmed that a leader's communication affected the performance of the team. Tasks became clear through this pattern of communication so the person could perform the tasks well. Yrle, Hartman, and Galle (2002) explained that communication supported and enhances leaders' and subordinates' relationships. Contradicting to a horizontal pattern which yielded the highest effects on satisfaction and team maintenance, the vertical pattern yielded the lowest positive influences on satisfaction and team maintenance. It was likely that vertical communication prohibited the relationship between colleagues in the same team and with others. Hence, it could not generate the spirit of a team through satisfaction and maintenance. Moreover, vertical communication might be against the objectives towards integration and collaboration of work with others.

Implication and Recommendations

The findings of this study suggested several implications for private university administrators. Although the results suggested private universities utilize all three communication patterns, an emphasis on horizontal and diagonal communication is proven beneficial to team effectiveness. Horizontal communication showed the highest effects on members' satisfaction and team maintenance. Diagonal communication showed the highest effect on task accomplishment.

Private university administrators should organize work processes that enable direct and informal communication among personnel, in the same and across hierarchical levels rather than communicating only through a formal chain of command. Personnel in different departments should be able and allowed to connect. The organization structure and the system should be modified. Cross-functional communication facilitates coordination among work units. It provides opportunities for discussion and sharing of knowledge which leads to better overall organizational performance.

Apart from face-to-face communication, either in an individual or group meeting context, modern electronic communication channels such as email, Facebook, line, etc. should be considered. Private universities should utilize an effective internet system for personnel so they can communicate through computers or mobile phones easily.

A common ground, both physical and virtual, for an informal meeting is advantageous. Informal communication attained higher effectiveness. Personnel in private universities are knowledgeable and capable of work, stringent supervision in the form of vertical communication might be inappropriate for private universities. A general guideline is more appropriate. Rigid rules and regulations might prohibit or obstruct communication across the chain of command. These rules and regulations should be reconsidered.

Moreover, acquaintances among personnel should be promoted. Coordination between personnel in cross-functional positions can enhance the work process. Administrators should arrange for getting together activities among personnel so they get to know each other better. This becomes the basis for the creation and sharing of information among personnel. Better understanding among personnel can be attained.

Training programs should be organized to train communication and human relation skills for personnel. Personnel might have already used these media but some might overlook or have never used several of its beneficial features. In addition to supporting information and knowledge to personnel, training programs can be used to motivate personnel to use these media. Furthermore, training activities enable personnel to be acquainted and feel more comfortable

communicating with each other. Trainees would obtain each other's contact IDs and can make contact easier. A user-friendly contact ID search system is recommended.

Given the importance of communication, private universities should establish a communication authority. Communication specialists should be recruited to design and implement as well as monitor both internal and external communication. The collection and flow of information should be carefully planned and monitored. A central database should be established to collect data and information for user-friendly retrieval.

Conclusion

Carrière and Bourque (2009) suggested the management should understand subordinates' desires for information and design an internal communication system that matched subordinates' needs. This study found that diagonal communication could influence task accomplishment well. Horizontal promoted members' satisfaction and team members' intention to stay with the team. Verticals had a positive influence on task accomplishment. Currently, the university supported horizontal communication more than other patterns. Open communication with personnel in other departments and levels provide a channel to transfer the knowledge both in the same and different task area among personnel. Hence, the management should promote more diagonal communication flow. Vertical communication should be used when communicating task-wise information.

This project revealed the influence of communication patterns upon team effectiveness, a future research project might apply the qualitative method to create an in-depth understanding of the mechanism of the influences. Moreover, another project to investigate the relationship among public universities might yield an interesting result.

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The Reality Application of Academic Talent Management Strategies at King Faisal University

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ABSTRACT

This study aims to define the real application of academic talent management strategies at King Faisal University (KFU) from the perspective of a sample of academic staff. The sample included 134 staff chosen through the affordable method from 2012 members of the university staff during the academic year 2018/2019, representing 6.7%. The interview sample was composed of a total of five members of academic officials at KFU, from the rank of Dean and above, and three members from the administrative officials in the rank of General Manager. For collecting data, a Questionnaire was developed from three different fields representing the tasks and strategies of the talent management from the affiliated staff at KFU, where Cronbach's alpha (α) coefficient for the instrument's stability reached 0.91. The open-ended interviews were used to collect the qualitative data. The results of the study show that the means for the fields of the study reach a high level in terms of the sample estimates of academic talent management at KFU. The field of comprehensiveness and utilization of talents at all levels in the workplace ranked top in terms of the arithmetic averages. The real application of academic talent management at KFU includes several positive aspects resulting from the institutional system and following a specific strategy while finding some shortcomings. The study recommends the need for providing a clear and specific system in addition to providing regulation for a regulatory culture on the importance of human talent management.

Keywords: Education Talent Management, King Faisal University, Higher Education

Introduction

Undoubtedly, talent has become important to achieve distinction at any institution, including universities and academic institutions. This makes the process of selecting and managing talent effectively to be one of the most decisive factors in the success of a university and it increases its competitiveness. Accordingly, the high quality of academic staff members and officials is considered one of the greatest assets of a university. Additionally, providing a strategy for managing the comprehensive talents and utilizing development instruments, and developing human resources results in an increase in the value of the university as a whole and preserves its reputation among scientific institutions locally and internationally.

Higher education institutions invest substantially in attracting distinguished students. right students and distinguished teaching staff are attracted to the faculty However, finding distinguished officials requires the knowledge, skills, and making sure the potential candidates for filling a position will be fit for the role and add value to the university. In addition, the recruitment, retention, and development of the academic staff are considered an ongoing concern for the universities, especially about certain specialties.

The trend in managing talents is considered one of the most important trends in recent years in the field of human resource management, which arises due to the competitiveness among international companies. It forms a modern and effective way to enable the officials to achieve strategic targets for the institution through optimally using unlimited capabilities. Talent management forms the strategic priorities in the 21st century (Abu Aljada'el, 2013). It could be said that today, talent management has become one of the modern strategic instruments contributing to the continued flow of leadership talents within institutions. (Rowland, 2011). The results of the study (Saurombe et al, 2017) showed that the following issues should form the essence of the educational process for the employees of the academy, the organizational culture, identity, strategic vision, social responsibility, and the careful management of the talents.

Institutions are increasingly aware of the role played by strategic and innovative technologies in helping them to better develop their workforce and economic development. Moreover, academic institutions require advanced technological solutions that help to achieve university goals. Even with limited resources and budget, it is clear that the choice of a software system that manages employee succession and turnover, as well as improving polarization and recruitment processes, is critical to improving the quality of individuals needed by the institution. Therefore, we find that the Ellucian Talent Management Suite group is widely used in many universities, such as Idaho University (Ellucian, 2018).

The process of talent identification in higher education institutions is one of the most important stages of talents management which can be achieved through several methods, the most

prominent of which are: Outstanding and distinctive classroom practices, as well as the ability to influence colleagues; having a good work-life balance; seeking self-development opportunities; using external assessment centers and psychological tests, which can provide thoughtful and objective assessments about the individual's potential future performance; and reviewing common performance management standards (Tansley, 2011 ; (Lewis & Heckman, 2006).

Moreover, planning for handing over the baton of leadership and career substitution is an essential stage in talent management. The educational institutions' management must focus on how to identify and develop leaders through training and developing the efficiency of academics, as the academics' efficiency is the most influential factor in students' achievement. However, as employing staff with the appropriate competencies is not enough, the institution needs to develop these talents, which may be a little expensive. Talent management is critical in several institutions, as it reduces the cost of replacing talents, reduces the risk of the need to hire new employees, and increases the quality of customer service so that customers are satisfied with the presence of the talent within the organization (El-Hamidy and El-Tayeb, 2011). Talent within the organization can be classified into Leadership Talent, the most prominent and key talent; Key Talent, the basic talents that have the vision and perception of the organization; Core Talent, are those who do the core business; and Support Talent (Osinga, 2009). The management of human talent is part of the indispensable management process that refers to a particular group or combination of human resource practices in an organization (Frank & Taylor, 2004). The talent management strategies consist of several elements designed to achieve the organization's objectives (Fred & Gerald, 2007).

Talent management refers to procedures and processes that translate the organization's strategy into a program to achieve excellence in the organization (Lance & Dorothy, 2010). As Ahmed (2011) indicated, the difficulty of defining the concept of talent management is due to the divergence of researchers' views on management, some of whom say it is static, others see it as a variable dynamic, another group sees it as strategic, while a fourth group considers it to be a component of the performance management system. Ahmed (2011) has concluded that the concept of talent management is a set of processes that seek to formulate a strategy focusing on planning the organization's current and future needs of talented people, working on attracting them from abroad, as well as diagnosing the level and quality of the organization's currently available talents within all organizational levels. Moreover, talent management is also defined as the university's ability to provide a systematic approach to sharpen, use, improve and develop the staff's skills, in addition to treating such employees as talents worthy of care and attention and pushing forward and striving to recruit the right person to achieve competitiveness (Pruis, 2011).

Several recent scientific studies have found positive results in the behavior and performance of staff and leaders who have been dealt with in their organization based on talent management

strategies. As Brandt and Kull's (2007) study found, the organization's policy to keep talents leads to a sense of belonging and pride for staff members towards their organization. Moreover, McDonnell et al.'s (2010) study found that there is a moral relationship between employees' perception of talent management and the number of years spent at work. A study conducted by Tymon et al. (2010) found that the greater the reward for a talented employee, the greater his satisfaction with the organization and its success. Another study conducted by Davies and Davies (2010) showed the importance of talent management in educational institutions. Several local studies have traced the reality of talent management in aspects of the educational system at KSA. Moreover, the study by Mahmoud and Awadallah (2013) recommended a flexible strategic plan for the application of institutional talent management in public education schools. Furthermore, the study by Al Ghamidi (2016) recommended adopting a model that works according to a specific objective mechanism in the selection of educational leaders. Finally, the study by Al Anqary (2013) found that the educational sector is more interested in talent planning than other government sectors covered by the study.

Problems with the study

Developed countries realized the issue of competitiveness in attracting talent and dealt with it in light of the philosophy and systems of talent management. Whereas, many Arab institutions generally ignored the management of opportunities that requires less effort and cost in the management of talented people (El Anzy et al., 2011). The reason for the interest in talented people is due, among other things, to the technological and cognitive revolution, which left all countries no choice but to keep up with it (Jarwnn, 2017). What is provided by talent management to the educational leaders in general, and leaders in higher education institutions is confidence in abilities, motivation to achieve, love of the profession, forward-thinking motivation, and increasing job satisfaction, based on the recommendations of many conferences, including the Sixth Arab Conference for Human Resource Management (2012), the Conference of Integrated Talent Management (2010), as well as the First International Conference for Talent Management (2010), concerning the need of planning for career talent and creating talent management that is consistent with overall enterprise strategies. In addition, the pursuit of Saudi higher education institutions to achieve quality standards and prove to be efficient in light of the changes taking place in the Kingdom that are part of the 2030 Vision, directly guarantees to pay attention to talented Saudi people and empowering them. Several studies have shown the importance of talent management in educational institutions Davies and Davies (2010). Moreover, several local studies have traced the reality of talent management in aspects of the educational system at KSA. Moreover, the study by Mahmoud and Awadallah (2013) recommended a flexible strategic plan for the application of institutional talent management in public education schools.

This study was conducted to identify the reality of applying an academic talent management system at King Faisal University from the point of view of the faculty members and educational leaders in the university faculties and different academic departments. Specifically, the study attempts to answer the following questions:

Questions of the study

1. What is the reality of implementing the academic talent management system at King Faisal University from the point of view of the faculty members?

2. Does the university have a clear and defined strategy for managing academic talent as the university's academic leaders see it?

Objectives of the study

The study aims to understand the reality of applying a management system for academic talent management by King Faisal University's administration in Saudi Arabia and determine the quality of the attention paid to the university's talented employees.

Importance of the study

This study aims to enrich the theme of human talent management and systems in higher educational institutions in Saudi Arabia. Moreover, it contributes to developing King Faisal University’s systems in this field, to the point of applying systems that achieve competitive advantages.

Terms of the study

- King Faisal University: An official governmental university in the Kingdom of Saudi Arabia was established in 1975 in the Kingdom of Saudi Arabia. The university offers its students' university education and graduate studies in various fields of science, specialized knowledge, and scientific research.
- Talented Management: Written and non-written regulations, instructions, and directions by the university administration regarding the recruitment, sponsorship, and motivation of talented faculty members and administrators.

Limitations of the study

This study is limited in the following:

- Limited to a sample of faculty members working at King Faisal University in Saudi Arabia during the academic year 2018/2019.
- The results of this study were determined using a questionnaire limited to the following areas: The compatibility with the university's strategies; the use of job competency models; talent comprehensiveness at all levels, in addition to investing in the work environment, as well as the talent management system at the university.

Theoretical framework

King Faisal University is a Saudi university established in 1975 in the city of Al-Hofuf in the Al-Ahsa Governorate. It has developed over the past years to reach more than 37,658 students in bachelor degree programs and around 2623 students in postgraduate studies for the academic year 2018/2019. The number of faculty members, lecturers, and teaching assistants has grown so that it reaches 2012 members in the same year. In addition, there has been quantitative and qualitative growth in the number of faculties and deanships, including the Deanship of Faculty Affairs (King Faisal University, 2018).

Due to the role played by the university in developing and providing the community with competencies to improve the performance of work in government agencies, and in pursuit of the goal of King Faisal University for the cognitive development in all fields, the university has been keen to develop work performance through working on attracting talent in various fields, as well as ensuring the recruitment of outstanding faculty members and qualified staff, while also attracting the outstanding students. The university has also established a specialized center for talent and creativity research called the National Center for Talent and Creativity Research whose objectives are to nurture talent at the higher education level. The university's strategic plan includes objectives for attracting and nurturing talent, as well as regulations and instructions that stimulate and encourage the university's talented staff (King Faisal University, 2018). These trends and programs come within the framework to integrate into the training of faculty members in cooperation with the supporting deanships, including the Deanship of Development and Quality Assurance and the Deanship of Faculty Affairs, which helps in the success of management programs and talent attraction.

Faculty members have a key role to play in the success of higher education institutions. Therefore, these institutions must be developed to become attractive to many of them(Saurombe et.al, 2017). Still finding highly qualified faculty members and a potential group of talented scientists represents a central management challenge for the time being. Schweier sees talent management in all its operations. It has three main areas: talent identification and incubation, and talent development (Schweyer, 2004). Moreover, what universities should do to develop academic work in them? University talent management involves the development of a group of highly qualified and effective people to fill these roles and develop their skills in working with qualified staff to ensure their commitment to the organization (Collings and Mellahi, 2009). Talent management is based on organizational development and the challenges and barriers to human relations in organizations that are classified as organizational elements (Awadallah (2013).

Universities have an important role in establishing a knowledge society by focusing on creativity, innovation, and growth in all areas of life. To achieve this must face the variables that

the most important is how to implement the strategy of human talent management to achieve excellent research. Talent Management helps faculty members stay motivated and constantly looking for what can be best for teaching students and helping them achieve their learning goals (El-Hamidy and El-Tayeb, 2011). This requires the refinement of talent through structured training strategies that promote personal and career growth and aim to develop the skills of the gifted and drive them to excellence and creativity. This also requires the existence of specific and clear strategies at the university aimed at supporting functional competencies (El Anzy et al., 2011).

Staff and university faculty want to develop a development plan that highlights their competence and allows for easy tracking of their progress (Roccio, 2010) .This requires the universality of talent for all levels and investment in the university working environment. Also, this requires a plan to develop the Talent Management System by setting clear criteria for measuring talent, creating a comprehensive database of information on all the talents and talents of employees that disappear behind their daily functions, as well as talent in competing universities (Okonkwo, 2015). The presence of talent in the organization allows it to compete with others, and improves performance, and Establish a fair system of rewards and incentives, through which functional specifications are unified. This requires the encouragement of those talents and motivates them to creative work (Musha, 2004).

The procedures and practices of the university through the talent management system are very important, as the provision of incentive measures in terms of allocating a special budget to attract and develop talents, involve talented decision-making, problem-solving by an institutional system, and follow a specific strategy in their internal systems (Davies and Davies, 2010). This requires universities to possess the best human talent to manage their functional, administrative, research, methodological and ethical tasks with high efficiency to achieve their strategic objectives (Syam, 2013 & Bassi and McMurrer, 2007).

In conclusion, the strategic elements of talent management at universities are integrated and interacting together. To produce positive results, they must include a talent-based reward system, job descriptions, appropriate plans for university talent, talent distribution among all departments, and an effective management system Pressures, And develop an effective stress management system, and a system of communication processes.

Talent management processes

There are several global models in talent management, most of which adopt the strategies of planning, polarization, talent selection, performance evaluation, training and development, retention of talent, loss of talent, gap analysis, and talent compensation. Abu Aljada'el (2013) refers to the consensus of researchers to limit these strategies to the following five strategies:

Planning for leading talent; attracting leading talent; managing leading talent performance; training and developing leading talents; and retaining leading talents. A challenge that higher education institutions face, in particular, is how to attract and retain top talent (Erasmus, et al, 2017). According to Knight, & Morshidi, (2011) higher education institutions worldwide are facing strong competition for funding and students.

Moreover, several models are dealing with talent management processes, such as Silzer and Dowell (2009) who referred to a four-step model: Identifying the strategies of talent requirements; evaluating individuals through the required competencies; improving and developing individual capabilities, and retaining talented people. While Wilson (2012) added other dimensions such as defining the skills gap and identifying reward and compensation strategies. By reviewing several talent management models, Campbell and Hirsh (2013), found a four-step model that has been adopted by 23 specialized organizations. This model is based on the following steps: The first step is to identify the concept of talent management. The second step is to identify where we need this model (business risk). The third step is to identify processes in terms of readiness and applicability, and the fourth step includes procedures for determining the outcomes of the talent management process and its measurement mechanism.

By reviewing some studies on the subject of talent management, it can be noted that a part of it has discussed the subject from different perspectives, whether it is the components of this department, how it is applied, its strategy, the basis of its promotion, or various models and systems for talent management, most of them aimed to understand the extent to which this management is applied, both from the point of view of the managers and the employees themselves and to see how well talent management affects performance (Kehinde, 2010; Fred & Gerald, 2007; Ntonga, 2007). While some studies were interested in applying the scientific aspect of talent management to companies or factories or at the state level (Berger & Berger, 2011), this differs from the current study's applied framework that dealt with King Faisal University as a case study. Regarding Riccio's study (2010), the system has been applied at private faculties and universities. Some studies focused on talent management strategy instruments, the career path that is a competitive instrument to attract and retain talented human resources (Bolema, 2007). The studies by Langenegger et al. (2010), Jyotsna (2007) Collings, and Mellahi (2009) discussed some of the talent management strategies. While other studies discussed talent management within multinational companies, such as Dodyk et al. (2012), Pruis (2011), and Marjan et al. (2017).

The study by Syam (2013) aimed to identify the reality of human resource management system (HRMS) implementation. The descriptive-analytical approach was employed. The questionnaire was used for this purpose. The results found that there is ambiguity in the concept of human resources management among employees in the senior and middle management especially

concerning the operations of the system. The study by Rudhumbu & Maphosa (2015) aimed to investigate the talent management strategies in government and private higher education institutions. In addition, uses these strategies to attract and retain talent. The findings revealed that the talent management strategies work hard and progressively, but there is a lack of knowledge and ability to implement talent management strategies. The study by Thunnissen (2016) aimed to determine the details in the practice of talent management to build a balanced theoretical framework for talent management that takes into account the influence of the organizational context. Talent management has been effective from an organizational perspective because the organization has applied a talent management system that meets its needs. As for talented staff in the practices of talent management were not met adequately. This indicates that talent management has low value in their opinion. Saurombe et al. (2017) conducted a study aimed to discover management believes of higher education foundations for the attraction of talented faculty members. The results showed that six important topics to form the brand of higher education for faculty members. These topics are organizational culture and identity, reputation, strategic vision, work and surrounding environment, corporate social responsibility. Tyagi et al. (2017) conducted a study aimed to offers a number of the best strategies to help institutions to attract and retain talent. The results showed that talent management would lead to the development and growth of the organization. The strategies will identify the required core competencies, this leads to the appointment and selection of the most effective staff based on appropriate competencies.

Methodology and procedures of the study

Methodology of the study

The study followed an analytically descriptive method based on the collection, classification, organization, and expression of information and quantitative and qualitative data, insights into how talent management is implemented at the university. In addition, this study aimed to obtain the views of the academic leaders (head of the department chair and dean) through an open interview that includes an opportunity for the sample member to give his vision of talent management in the university.

Study sample and participants

The study's sample was a combination of all faculty members at King Faisal University in the Kingdom of Saudi Arabia representing a total number of 2012 members during the academic year 2018/2019. The study sample was chosen simply, as appropriate for its objectives, from 134-faculty member's equivalent to 6.7% of the study's sample. The interview sample was composed of a number of the university's academic officials totaling about 5, all of whom were of the rank of Dean and above, and administrative officials totaling about 3, all of whom were of the rank of Director-General. Table 1 shows the distribution of the study sample according to the individuals' characteristics.

Table 1: The distribution of the study sample according to the individuals' characteristics

The Variable		The number	%	Total
Academic Rank	Associate professor	16	12	134
	Assistant Professor	83	62	
	Lecturer	35	26	
Years of Experience at the university	Less than 5 years	47	35	
	5 to 10 years	50	37	
	more than 10 years	37	28	
Current Job	Faculty member	119	88	
	Head of the department	9	7	
	Dean	6	5	

Instrument of the study

The study instrument was designed by examining the literature, studies, references, and works related to talent management in institutions of higher education, in particular, Riccio (2010), Langenegger et al. (2010); Jyotsna (2007); Jack (2014), and El Anzy et al. (2011) as well as the regulations and instructions at King Faisal University within this framework. This instrument consisted of 33 phrases including three main dimensions as follows:

- First dimension: Compatibility with the university's strategies and supporting job competencies which included 15 phrases;
- Second dimension: The comprehensiveness of talents at all levels as well as investing in the work environment which included 14 phrases;
- Third dimension: Processes and procedures, including 15 phrases.

The response to the instrument's phrases came in a five-step scale of approval as follows: Very high; high; medium; low; very low. These estimates were given numerical weights: 5; 4; 3; 2; 1, respectively. To judge the study tool uses the following equation: (the highest value of the alternative-minimum alternative)/number of levels; (5-1)/3 = 1.33, so the levels are as follows:

Limits	Degree
Less than 2.33	Low
2.34 - 3.66	Medium
More than 3.67	High

The instrument of this study was developed according to determine three dimensions of (Talent Management) by reviewing the past studies that dealt (Talent Management in Higher Education Institutions). Roccio (2004) conducted a study to determine a set of successful practices for administrative talent management in higher education. The study also dealt with staff development strategies for the development of future leaders to achieve continuity. In addition, both training and growth opportunities in the work environment were clear in most institutions. The study by Farooq et al. (2016) examined the talent management practices at all levels to show

excellent and effective performance. The model also mentioned that the effect of talent management practices on staff performance and efficiency at work, and emphasize a better understanding of staff needs as support professional development. The study by Okonkwo (2015) aimed to examine the nature of talent management in the Higher Education Institutions in the United Kingdom. In addition to assessing the importance of talent management as a source of competitive advantage for higher education institutions. The finding revealed that there is a strong relationship for talent management in the Higher Education Institutions in the UK. This has been evident during increased competition in the Institution and the increasing need for high-quality employees.

Instrument reliability

To verify the instrument's reliability, the researcher selected a group of arbitrators (17) with experience and specialization in the field of educational administration, from Saudi universities to benefit from their opinions, ideas, and observations. In terms of the relevance of the items and their formulation, accuracy, and integrity of their linguistic construction as well as the degree of affiliation of each item to the dimensions in which it is categorized. In light of the arbitrators' observations, some elements have been rewritten, merged, or deleted, and other elements added. The researchers modified 46 items in the primary tool. There were a total of 43 items in which arbitrators unanimously agreed on their reliability and affiliation according to their dimensions and were distributed on four dimensions, 85% of the arbitrators' opinions were considered as a criterion for judging the reliability of the phrase or not.

The stability of the instrument

Table 2: The Cronbach alpha consistency stability coefficient and the Pearson correlation coefficient.

Number	Field	Number of items	The consistency stability coefficient (Cronbach alpha)	The stability reliability coefficient (Pearson coefficient)
1	Conformity with the university's strategies and supporting the functional competencies	14	0.88	0.87
2	The comprehensiveness of talents at all levels as well as investing in the work environment	14	0.87	0.71
3	Talent management strategies at the university	15	0.86	0.78

To ensure the stability of the instrument, the researcher applied the instrument to a survey sample of 57 faculty members from the cooperators who are not included in the study sample - twice and at two weeks intervals between the first and second application. Then the stability of the instrument was calculated applying Cronbach Alpha, as well as the correlation coefficient in which the consistency stability coefficients inside the dimensions ranged between 0.88 and 0.86

and as a whole for the instrument-rated at (0.91). Also, the correlation coefficient of Pearson was calculated between the results of the two applications, in which the correlation values ranged between the dimensions 0.87 and 0.71 and as a whole for the instrument (0.88), ensuring that this value was sufficient for the stability of the instrument and the consistency of its items as shown in Table 2

The study results and discussion

The results relating to the first question: what is the reality of implementing the academic talents management system at King Faisal University from the point of view of the faculty members? To answer that question, the means and standard deviation for this study dimensions were calculated. Table 3 below shows these results.

Table 3: The means and standard deviation for the study dimensions in descending order

Number	Field	Means	Standard deviation	Rank
1	The comprehensiveness of talents at all levels as well as investing in the work environment	4.34	0.51504	1
2	Processes and procedures	4.30	.49112	2
3	Conformity with the university's strategies and supporting the functional competencies	4.23	0.57831	3

It can be noted from Table 3 that all the means for the areas of the study reach a high level concerning the assessment of study sample for managing talent at King Faisal University, in which the field of comprehensiveness of the talent at all levels and working on investing in the work environment was the highest in terms of the means totaling 4.34. Following this, the field of processes and procedures at a means totaling 4.30, and in the final rank, the field of conformity with the university's strategies and supporting functional competencies at a means totaling 4.23. Additionally, it has been noted that the differences were little between the different fields relating to the management of talent as seen by the faculty members. These results point to a positive assessment for the application reality of the concept and strategies for managing talent by the study's participants, which supports many of the declared indicators from the university management regarding the importance of talent, attracting it, and materially and morally enhancing its existence within the university, and the existence of an actual strategy supporting this trends. These results align with some aspects of the study undertaken by Jack (2014). For determining the details of these indicators within the fields of study, the means and standard deviations have been calculated for each area separately. Table 4 below shows the means of the consistency dimension items with the university's strategies and supports the functional competencies in descending order.

Table 4: The means of the consistency dimensions items with the university's strategies and supports the functional competencies in descending order

Rank	items	Means	Standard deviation
1	The university's vision is based on the values of its personnel and how much talent they have	4.47	0.733
2	The university's goals support the talents and capabilities of the employees in the long and short term.	4.40	0.737
3	The university's goals support the talents and capabilities of the employees in the long and short term.	4.40	0.756
4	The strategies and policies of the university take into account the existence of talented people at all organizational levels.	4.34	0.858
5	The university places talented personnel and their management strategy in the list of priorities.	4.31	0.806
6	The university makes clear plans for encouraging innovations, initiatives, and new ideas	4.25	0.862
7	There are rules and data for those who are talented that are available to the university management (preparing the talented individual and their talent field).	4.24	1.013
8	The university is allowing the participation of talented personnel in building the strategic plan and developing the strategies of the university	4.22	0.853
9	The university sets a clear and popular functional description of personnel at every organizational level.	4.22	0.896
10	The university determines the know-how, skills, and behaviors that form the success factors for any job.	4.22	0.915
11	The university establishes a performance assessment system based on competencies and talents.	4.16	0.866
12	The university management delegates the authority to the talented personnel and determines their responsibilities.	4.07	0.919
13	The university establishes criteria for excellence between personnel.	3.98	1.086
14	The university has a specialization in managing human talents.	3.96	1.103
Total		4.23	0.57831

Table 4 shows that the items, "The university's vision are based on the values of its personnel and how much talent they have", gets the highest means of 4.47 and indicates the reality of managing academic talent at the university concerning the compatibility with the university's strategies, as well as the item, "The university's goals support the talents and capabilities of the employees in the long and short term", at an average rate of 4.40, indicating support for the functional competencies at the university. Additionally, they are positive indicators supporting

an attractive work environment at the university as seen by the participants in the study sample, in which these items correspond to a high degree of the assessments of the study sample. In addition, this leads, to what extent is there coherence and alignment between policy implementation in the university. Participants believe that it is important for faculty members to express what is important to them so that the administration can create the environment and conditions necessary to progress in their work. As for the smallest items refers to the means, they have acquired an average at 3.96 and corresponded to a high degree and they are as follows: "the university has a specialized management concerning the human talents" that is linked to the compatibility with the university strategies, as well as the items "the university establishes measures for excellence among the employees". In addition, corresponds to a means estimated at (3.98) and indicates the functional competencies through a further positive signal to the reality of talent management strategies at King Faisal University. This is borne out by the fact that the means for all items ranged between 4.47 and 3.96 and it meets a high degree of assessment. In terms of the existence of remunerations that are offered to the most excellent and distinguished members of the university staff, and financial and moral rewards are offered to them annually, meaning that anyone who is published in international journals is granted a remunerative financial reward, along with the moral management for the university's talent. In the conclusion, these practices indicate the consensus of faculty members and their satisfaction with the University's actions in this vital area of the University's strategy for talent management. Concerning the field of comprehensiveness of the talent at all levels and working on investing in the work environment. Table 5 below shows the means of the items of this field in descending order.

Table 5 shows that the means for all items ranged between 4.67 and 4.34 and it meets a high degree of the assessments of the individuals in the study sample for the reality of talent management at the academic university in the field of comprehensiveness of the talent at all levels and working on investing in the work environment. These results are considered to be a positive indicator of this field and illustrate a positive impression on the individuals in the sample concerning the policies of the university and its different procedures in this important field concerning the item citing that "The University categorizes the required talent quality at every organizational level", receiving an average of 4.67. Other practices enhance this framework by developing an incentives system and require the existence of all talents at all the organizational levels. Accessing the item, "The University categorizes the required talent quality at every organizational level" which received the lowest means of the items at 4.04. Thus confirming that the members of the university staff feel significantly good the level of the academic talent management strategy at the university; This is illustrated by several practices, including the involvement of talented individuals in decision-making and problem solving, and the opportunity to manage new projects and develop new services themselves. Moreover, by providing a climate conducive to working with talented individuals. It noted that many practices have obtained a great degree according to the members of the study in the dimension

"comprehensiveness of the talent at all levels and working on investing in the work environment" including the quality of talent required for each organizational level, the presence of talented at the middle administrative levels, attracting talented people to occupy critical jobs, allocate a special budget to polarize And the development of talented people, and the University provides the appropriate climate for the work of talented. These results express a positive impression among the respondents on the University's policies and procedures in this area.

Table 5: The means for the items of the dimensions of comprehensiveness of the talent at all levels and working on investing in the work environment in descending order

Rank	**Items**	**Means**	**Standard** deviation
1	The university categorizes the required quality of talent for every organizational level.	4.67	0.598
2	The university categorizes the required quality of talent for every organizational level.	4.56	0.688
3	The university requires the existence of talented individuals at middle administrative levels.	4.52	0.668
4	The university requires the existence of talented individuals at lower administrative levels.	4.48	0.680
5	The university concentrates on attracting talent to fill critical functional positions.	4.46	0.732
6	The university determines the talented individuals to immediately serve as replacements for critical positions when leaving work.	4.40	0.747
7	The university works to attract skilled and technical workers who are talented.	4.37	0.710
8	The university allocates a special budget for attracting and developing talented individuals.	4.34	0.902
9	The university prepares a propitious climate for working with talented individuals.	4.33	0.723
10	The university benefits from the initiatives of talented individuals and works on applying and supporting them.	4.20	0.908
11	The university gives talented individuals the opportunity to manage new projects and develop new services by themselves.	4.16	0.925
12	The university seeks to exploit talented individuals' chances more than through training programs.	4.12	1.041
13	The university involves talented individuals in decision-making and problem-solving.	4.10	0.903
14	The university categorizes the required quality of talent for every organizational level.	4.04	1.014
Total		4.34	0.51504

Additionally, Table 6 below shows the means of the item on the dimensions of processes and procedures in descending order.

Table 6: The means on the dimensions of processes and procedures in descending order.

Rank	items	Means	Standard deviation
1	The talent management strategy at the university provides new plans and strategies aiming for innovation and creation.	4.75	0.501
2	The talent management strategy at the university is used to attract, test, appoint and develop employees.	4.65	0.652
3	The university studies the type of talent each individual has before his appointment.	4.65	0.616
4	The university is planning to choose the talent that meets its goals at any educational level.	4.63	0.632
5	The university benefits from the initiatives of talented individuals and works to apply and support them.	4.50	0.783
6	Talent management strategies enhance the functional competency modules at the university.	4.49	0.753
7	Talent management strategies include all the organizational levels at the university.	4.47	0.753
8	Talent management strategies linked to success at the university.	4.42	0.759
9	Talent management strategies create the existence of new leadership at the university.	4.40	0.767
10	Talent management strategies support the assessment process of the employees.	4.37	0.854
11	The application of talent management strategies is one of the goals of the university in the long and short term.	4.35	0.797
12	The university seeks to exploit talented individual's chances more than through training programs.	4.35	0.807
13	Talent management strategies enhance the right talent in the right place at the university.	4.16	0.935
14	Organizing talent management expands the investment in the placement of talent.	4.15	0.854
15	The university involves talented individuals in decision-making and problem-solving.	3.70	1.233
Total		4.30	.49112

Table 6 shows that all the items in the field demonstrated a high degree of responses for the individuals in the study sample concerning the reality of the concept and strategies of talent management at the university and that these averages ranged between 4.75 for the items, "The

talent management strategy at the university provides new plans and strategies aiming for innovation and creation", and 3.7 for the items, "The university involves talented individuals in decision making and problem-solving". It demonstrates that the individuals in the study sample confirm that talent management strategies follow an acceptable strategy and systematic procedures. The results show that many practices have been largely attributed to the study dimension "processes and procedures" such as Providing plans and strategies in support of creativity and innovation, selecting suitable talent for university employment, and linking the talent management system to the availability of university success. It also shows that The University seeks to harness the opportunities of the talented individual through training programs, enhance talent management strategies, and put them in the right place. These practices point to positive aspects of the University's actions and processes regarding talent management, based on the views of faculty members. The application of Talent Management strategies is one of the University's long and short-term goals.

The results related to the second question: Does the university have a clear and defined strategy for managing academic talent as the university's academic leaders see it?

To answer this question, an interview was conducted with 5 responsible academics at the university all from the rank of General Director and above. The duration of the interview was approximately 30 minutes and the interview focused on the university's talent management procedures and parameters in the field of academic and administrative talent care, attracting talent, and measures that followed by the university within this framework. The topic was discussed and the individuals in the study sample were allowed to freely express their views on it and the researcher did not intervene except on raising the sub-questions about the topic.

The interview showed that the majority of the responses from the individuals in the survey sample who interviewed, totaling fifty (50), differed in their responses including some of the positive aspects regarding the talent management system. These responses demonstrated that 16% of participants showed concern in the university not to let the individuals leave, and this percentage refers to the dispatch of young leaders in the context of replacing current talents. 14% of responses indicated that the university made efforts to attract competent and efficient staff, and 12% of these responses pointed out that the university has already established several internal systems to distinguish talented employees from other individuals. These responses carried a positive aspect reflecting the importance of talent management at the university and the philosophy adopted by the university therein.

On the other hand, the interviews demonstrated some of the negative aspects about the reality of the concept of academic talent management at the university in which the scores of 10% of responses indicated existence of some talented individuals leaving the university due to external performances. Additionally, 14% pointed out the differing perspective of the successive

managements of the university towards talent management. In addition, 10% of responses outlined that the higher education system sometimes limits the attraction of distinguished individuals since there are limitations on the financial and moral advantages. 8% of responses stressed the need for a clear and determined system for talent management of individuals who are attributed to the university, and these results align with what was demonstrated in the study undertaken by Erasmus et al. (2017).

In conclusion, the reality and strategy of talent management at King Faisal University includes several positive aspects that are adopted following an institutional system and the pursuit of a particular strategy. However, this reality follows the mood of the application according to successive leaders and is defined by the regulations and instructions of the Ministry of Education, which is the main umbrella of university systems.

Recommendations of the study and its proposals

Depending on the results achieved and produced, the study recommends:

- Knowledge of the factors that influence the process of managing the talents of King Faisal University from strategy to results can help practitioners build a more effective approach to their management at the university level.
- The need to develop a clear strategic plan for talent management, including the provision of regulations that manage the university's human academic talent and that these strategies are in line with the strategies and instructions of the Ministry of Education. As well, as focus on stimulating and encouraging gifted individuals.

The study suggests conducting a study in alignment with the 2030 vision of the KSA that includes developing a proposed view to retaining talented individuals within the university in the areas of identifying and engaging talent.

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Accreditation: Through the Lens of Assessors

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ABSTRACT

Academic accreditation continues to be the "buzzword" and beacon of assuring the quality of the educational offers of HEIs, colleges, or programs in most countries. A greater part of the accreditation is in both audits, which is compliance and assessment that determines how well the entity has performed, all based on widely-accepted rubrics of continuous improvements. The success of accreditation runs from the poorly performing to the highest performing bands on the performance spectrum. Assessee is always asking a simple question of "what to expect" from the assessors. This paper aims to demystify the assessors' myth by probing into the assessors' mindset of their expectations and what and how they normally approach the performance assessment process underscoring the accreditation. While there are no fixed or best answers, there is a common thread of which most assessors use. This common thread is the use of the most basic and widely used Deming Cycle rubrics of PDCA (Plan, Do Check, and Act) of "Closing the Loop". For Performance Excellence, the main rubric is to audit and assess the performance using the evaluative factors of ADLI (Approach, Deployment, Learning, Integration) for Process Criteria and LeTCI (Level, Trend, Comparison, Integration) for Results Criteria. These evaluative factors are used as the assessment guidelines of what and how the entity has performed, meaning the process efficiencies and results effectiveness, concerning their mission, goals, or measurable objectives. The performance assessment is based on what (the processes) and how well (the results) the entity is doing to meet or go beyond the standards criteria (the accreditation standards) to accomplish the mission, goals, and objectives (the term of reference). The performance of the educational value comes from the intersection of the Criteria, Self-Study content, and the Term of Reference.

Keywords: accreditation, performance assessment, mindset of assessor, performance excellence

Accreditation and Assessment

CHEA's (Council for Higher education Accreditation) with 7 regional accreditation bodies under its wings having accredited 3,509 HEIs (CHEA, 2017) defines "Accreditation as the review of the quality of higher education HEIs and programs" (CHEA, 2019). As noted by the SR Education Group (Colleges & Degrees, 2019), "Accreditation as a status shows the public that a school has met and is maintaining a high level of standards set by an accrediting agency". Accreditation governance of the accreditation agencies in the US is under the U.S. Department of Education (USDE, 2019), or under the Ministry of Education or special public organization under the sponsorship of governments in most developing countries. The U.S. Department of Education describes the practice of accreditation as "a means of conducting nongovernmental, peer evaluation of educational HEIs and programs" (USDE, 2019). It provides key services and Information on Accredited HEIs, Accreditor Recognition Criteria and processes, Information on Recognized Accreditors, and Recommendations on Improving Accreditation. Regional accreditation and specialized/program accreditation remain the primary drivers for assessment work at colleges and universities across all regions. The 2013 NILOA (National Institute for Learning Outcomes Assessment) Survey suggests that there is an increasing impetus for assessment as being driven by internal needs. This includes the use of assessment evidence to support program reviews, modify curricula, revise learning goals, and otherwise improve educational processes and effectiveness. It also identified certain drivers of assessment practice that have increased in relative importance over time like governing board and presidential mandates, statewide or coordinating board mandates, and faculty or staff interest in improving student learning (Gannon-Slater, 2014).

Basic accreditation principles hold all HEIs to have a clearly defined mission that aims to better educate and serve the students by demonstrating that the entity has the resources to achieve its mission while showing evidence of the mission being achieved. HEIs (Higher Education HEIs) have realized the importance of making the mission statement a "living statement". This means that when the mission is formulated and used strategically, it becomes is a powerful tool that communicates the HEI's fundamental principles, actualities, and truth of its actions to internal and external stakeholders. As such, the mission statement has become a driving force and beacon of the HEI and a yardstick for measuring its accomplishments and achievements **(**Lusthaus, et.al., 1995**).** This guides the goal or purpose of accreditation as "ensuring and assuring" that HEIs of higher education meets acceptable levels of quality (Hegji, 2017) as:

1. Assessing the quality of academic programs at HEIs of higher education, colleges, or programs based on established and tested sets of Standards or Criteria guiding the assessment and/or for professional certification and licensure and for upgrading courses offering such preparation.
2. Creating a culture of continuous improvement of academic quality at colleges and HEIs by stimulating a general raising of standards among educational HEIs through the involvement of faculty and staff comprehensively in HEIal evaluation and planning.

Accreditation is the national or international certification of an HEI or college or program that meets the minimum requirements of the established set of standards assuring that the program meets the needs of quality education based on a set of missions and goals of the entity. Accreditation forms the external perspective of EQA (External Quality Assurance), whichever definition holds in the literature, it is ultimately the certification of "Fit for Purpose". The purpose is the "mission and goals" that define who the HEI is, what they do and what they are capable of delivering, the rallying beacon which all assessors use as the starting point during the assessment. The requirements of the EQA inherently mean that the IQA (Internal Quality Assurance) key processes and results should create on the value-added educational deliveries. This ultimately means the "balancing of the EQA = IQA)" whereby the EQA and IQA are conjoined Siamese Twins, technically meaning that the EQA will be only as good as the EQA Teay (2009).

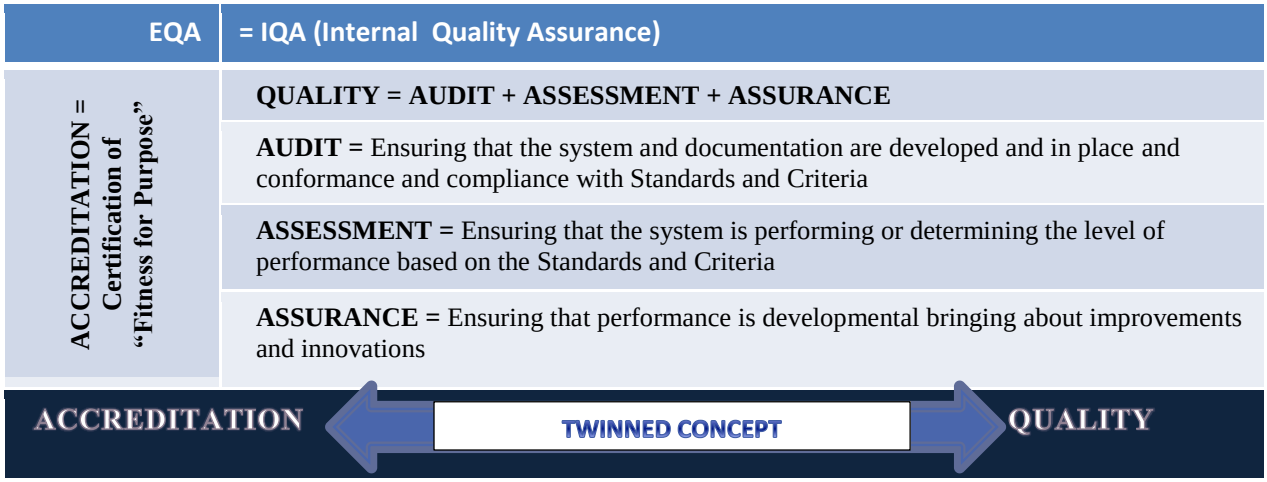


Figure 1: Balancing the EQA = IQA Equation

Source: Adapted from Teay, S., (2009), Balancing the IQA = EQA Equation, Journal of Institutional Research South East Asia, Vol. 7 No. 2 Nov/Dec 2009

Assessment is a key factor that contributes to a high-quality teaching and learning environment. The assessment focuses on identifying how many of the predefined education aims and goals have been achieved that also works as a feedback mechanism that educators should use to enhance their teaching practices. Thus, the assessment can be seen in the links that it forms with other education processes. On this matter, Lamprianou and Athanasou (2009:22) point out that the value of assessment is connected with the educational goals of "diagnosis, prediction, placement, evaluation, selection, grading, guidance or administration". Consequently, assessment is a critical part of the education process that provides information about the effectiveness of teaching and the progress of students and also makes clearer what teachers expect from students (Biggs, 1999).

Assessment is the process of collecting evidence and making judgments on whether competency has been achieved to confirm that the school or program can perform to and has accomplished

and achieved the standards expected by the stakeholders. It calls for the systematic collection, interpretation, and use of information about learning. It should provide teachers a better awareness of what pupils know and understand, what their learning experiences enable them to do, and what their skills and personal capabilities are. As such, the standards are normally described as the criteria requirements for the assessment. As noted by Teay, (2009) in "Balancing the EQA and IQA Equation" where EQA is accreditation, the IQA mechanisms that incorporate the internal audit and assessment process (Figure 1) leading to assurance of quality accomplishment should equate to the accreditation requirement. This means that the audit and assessment processes in the IQA are used to:

- Determine compliance and conformance to the Standards and criteria required of the national and international standards for academic performance and excellence,
- Determine whether people are either 'competent' or 'not yet competent' against the agreed academic standards,
- Determine whether "core processes" are in place and efficient in creating and delivering on the "results" as expected and needed by the stakeholders,
- Determine where the school or program is at any point in time and what can be continuously improved on or innovated on to bring about, meet and exceed the needs of the stakeholders.

Assessment, as defined in key literature, are:

- **Formative assessment** is a range of formal and informal assessment procedures used by teachers during the learning process so they can modify teaching and learning activities to improve pupil attainment. Formative assessment focuses on the process toward completing the product that provides feedback and information during the instructional process, while learning is taking place, and provides opportunities to develop more nuanced views about how students learn and adapt (ACT, 2017)
- **Summative assessment** comes at the end of a learning sequence and is used to acknowledge record and report on students' overall achievement at a given point. Summative assessment is an assessment that is used to signify competence or that contributes to a student's grade in a course, module, level, or degree. (O'Farrell, 2017).
- **Diagnostic assessment** is used to identify individual strengths, areas for improvement and to inform next steps. Diagnostic assessment can help identify students' current knowledge of a subject, their skill sets, and capabilities, and to clarify misconceptions before teaching takes place (ACT, 2017)

HEI evaluations have been described as "processes which use concepts and methods from the social and behavioral sciences to assess the organizations' current practices and find ways to increase their effectiveness and efficiency" (Universalia, 1993). The HEI evaluation is **an**

Evaluative assessment that is concerned with the overarching performance of arrangements in a department, school, or system (ACT, 2017). In preparing the HEI, college, or program for a self-study exercise or evaluative assessment leading to accreditation, the end output submitted for accreditation is the SSR (Self-Study Report). The IQA process covers the three main stages of Audit, Assessment, and Assurance of quality management of the educational services as follows:

- **AUDIT:** Audit is to ensure that the HEI, college, or program complies with the Standards that represent the Basic requirements of meeting compliance to the whole Standard holistically without dealing with the topical or detailed requirements. At the topical areas for each main Standard, the Criteria (Sub-Standards) represent the Overall requirements, whereby the sub-tropical areas within a Standard and Items (Sub-Sub-Standards) represent the multiple requirements of compliance.
- **ASSESSMENT:** Basically, the HEI has to demonstrate what and how they perform during the accreditation. This calls for the assessment or determination of the level of performance of both the processes for "efficiencies", and the results for "effectiveness of the achievements. Since there are two sets of the "Process" and "Results" criteria, the assessment and scoring evaluative factors used are different, but the scoring approach as explained in the later sections is similar. For the Process-Based Criteria that assess the processes set up to manage the quality of the Quality systems, mechanisms, tools, or techniques, the main rationale is to determine their Approach (A), Deployment (D), Learning (L), and Integration (I) meeting the Basic, Overall or the Multiple Requirements. The Result-Based Criteria that assess the performance indicators or measures are determined through the rationale of their Level of performance (Le), as well as the Trend (T), Comparison (C), and Integration (I) of the performance indicators or statistical results.
- **ASSURANCE:** The bottom-line for an HEI, college, or program is that the educational value that the stakeholder gets from the HEI, college, or program is an assurance of high quality, it delivers on what it claims to create and deliver based on its mission and goals. It includes opportunities for improvements with developmental planning to improve (continuous incremental improvements) or innovate (radical change by leapfrogging to a new "S" Curve) on what it has done and potentially does in the future. Assurance should bring about both (a) improvements and (b) development in the following areas:
    - The outcome of the assessment should identify the following:
        - Present Performance outcome based on evidence
        - Progressive performance outcome including the strengths and opportunities for improvement (on the Process ADLI and Results LeTCI)
    - Development is based on identifying the following:
        - Priorities for Improvement (based on the criterion or standard)
        - Comprehensive Development plan (that can be a set of action plans over 1 to 3 years)

Performance Assessment Tools and Approaches

In Performance Assessment, evidence is the Holy Grail testifying to the accomplishments and achievements of "student effectiveness". Both quantitative and qualitative data are normally utilized in institutional evaluations, depending on the issues being explored. Sources can be both internal and external to the HEI. A combination of qualitative and quantitative data is important, for unless tempered by other measures, quantitative measures considered in isolation can erode confidence in the evaluation process. By weaving qualitative with quantitative information, a deeper understanding of the HEI will be achieved. Quantitative data are important and take many forms, ranging from counts and other descriptive statistics to ratio variables such as measures of unit cost or productivity. All such data should conform to the best available standards of reliability and validity. Qualitative data has many forms and diverse sources. These include observational records of the HEI setting and its ambiance, data from interviews and group discussions, and written data ranging from letters of clients to formal questionnaires and inventories on the organizational culture. These forms of data, records, or documents can be gleaned from individuals inside the HEI as well as from peers and clients external to it. All this evidence is gathered to demonstrate competence in the skills and knowledge required by the units of competency contained in the school or program SSR. Common types of assessment methods used by assessors to gather evidence include:

(a) Direct Assessment:

- direct observation of the teaching & learning environment, physical infrastructure, evidential documents of accomplishments and achievements based on SMART (Specific, Measurable, Achievable, Realistic and Time-framed) objectives concerning the goals and mission of the HEI, college or programs;
- oral questioning of all targets respondents (administrators, faculty, students, stakeholders, staffs, strategic partners) of the realization of work performance efficiencies and effectiveness;
- demonstration of specific skills as defined in the "learning outcome" framework based on the student profile as guided by the HEI mission.

(b) Indirect Assessment:

- assessment of qualities of a final product which in this case is the "proficiencies of the graduates' competencies and capacities" defined by the "learning outcomes" as to what the graduate can do in real-life situations or work life;
- review of previous works undertaken by faculty and students which are more extra-curricular oriented that demonstrates the social skills, communicative skills, team-working skills, leadership, adaptability, creativity, or just basic human skills:

- written tests of underpinning knowledge, skills, and competence that forms part of the "screening", "attitudinal", "professional" or "standardized" test.

(c) Third-party Assessment:

- Testimonials from Employers of graduate utilization, graduate performance, and on-site skills development;
- Reports from Supervisors in fieldwork or internship or apprenticeship of the more "simulation and situational real-life" skills preparations and development;
- Work diary, Work reports, or logbook as documented actual work performed.

Specifically, there are two different types of assessment - *task* assessment and *evidence* assessment. As an assessor, one can look at a specific task to demonstrate their creation and delivery of knowledge and skills concerning the elements of a standard. Another way is to look for evidence of the school or program work already done to find something (or a range of things) that matches all the Standards and Criteria specified. All these are done concerning the goals and mission statement as the beacon of "term of reference". Whether it is by task or evidence, assessment can involve a variety of methods and approaches of which examples (Figure 2) are shown below:

<table>
<tr><th>Oral evidence</th><th>Written evidence</th></tr>
<tr><td>• Oral Answers to questions, feedback
• Presentation, Speech, Interview
• Peer instruction sessions</td><td rowspan="2">• Workplace documentation
• Portfolio (Faculty/Student/Course)
• Checklists, Worksheets, Forms
• Booklets, Reports, User manuals
• Charts, Tables, and posters
• Assignments, Written Questions, Tests
• Fill in gaps, Matching information, and Multi-choice (Not suitable for use where performance criteria call for school or program to describe)</td></tr>
<tr><td>Verification
Feedback (usually documented and signed) from:
• Faculty, Peers, Supervisors/ managers
• Administrative Support staff</td></tr>
<tr><th>Other</th><th>Practical evidence</th></tr>
<tr><td>• Cross-referencing from other assessments
• Recognition of current competence
• Integrated assessment
Note: Oral evidence needs to have clear evidence and judgment statements describing acceptable answers, and the oral evidence needs to be documented in some form.</td><td>• Observation – one-off occasions, or over some time
• Real-life situations, Demonstrations
• Video/Audiotapes
• Poster, Graphics, Visual representation
• Projects, Models
• Simulations, Naturally occurring evidence</td></tr>
</table>

Figure 2: Instrumentation of Performance Assessment

Assessors' Frame of Mind

In accreditation, many people will ask a very basic question of "what to expect" or "what the assessor will look for" from the assessor's perspective. Assessors are deemed to be professionals

who are highly trained and experienced who are trained to "see things what most people do not see critically and analytically". A better understanding of "what the assessor", "how they work" and more importantly "what their trained and focused mindset is looking for?". A better understanding of this key assessment process undertaken by the assessor is to look "inside" the mindset of the assessor. This is paper aim to demystify the assessment work of the assessor. They are not there to "find fault" with the HEI, College, or program. Their basic mission is two folds:

1. ***Determining the efficiencies of the Processes and Effectiveness of the Results concerning the mission and goals within the Standards and Criteria requirements –*** Based on the developed SSR (Self-Study Report) and evidence, the assessor will use the Standards and Criteria as the holistic requirements to audit and assess the HEI, college or program. The audit and assessment are of the processes efficiencies in arriving at a set of effective results within the context of the HEI, college, or program and meeting the minimum requirements. This audit and assessment also underpin the accomplishment and achievement of the mission and goals as the "beacon" or main term of reference of performance assessment.

2. ***Provide a "third party independent objective" evaluation of the HEI, college, or program*** – Based on the audited and assessed performance, the assessor will provide a set of value-added comments in terms of its strengths and a set of "opportunities for improvements" instead of referring them as weaknesses or areas to be improvements which have "negative intonations". The main aim here is to assist the HEI, college, or program to better understand their performance in terms of the "Strengths" and "Opportunities for Improvements".

Assessors, by their very nature, are highly trained scientists who are more research-oriented than heuristic-oriented. They had undergone hours of rigorous training and all weathered on-site experiences that had fine-tuned their mindset to find answers to the basic question of "well-performing or under-performing in the HEI, college or programmatic performance assessment". Their scientifically trained mind uses a very basic approach of the 5 "W"s and 1 "H" that is frequently used in any scientific research. In this case, the two main factors underpinning the performance of an entity are the process used to achieve the results. The core processes and results are underscored by the basic starting points of the strategic management (Teay and Al-Shehri, 2012) fundamentals of the Vision, Mission, Goals, Objectives, and Strategies (VMGOS) of any organization. One cannot escape from the fact that the HEI, College, and Program are organizational entities that are guided by the management principles or fundamentals that underscore their performance.

Analytical Mind	Typical Analytical Questions: HEI / College / Program graduates
WHAT?	• What do they mean by "HEI / College / Program graduate"? ➔ graduate profile • What is the profile of the "HEI / College / Program graduate"? ➔key attributes of outcomes accomplishment and achievements desired of the graduate • What outcomes measures are used to define the "HEI / College / Program graduate"? Are there defined LOs (Learning Outcomes)? ➔ key measures of the graduates' outcomes leading to the accomplishment of the graduate profile as aspired of the mission and goals of the HEI / College / Program • What are the Program Objectives? Are the SLOs that define measures of student effectiveness based on Program Objectives? ➔ Program Objectives guide the Program and Course Management development of the SLOs. • What development course of action takes place after the performance assessment?
WHY?	• Why is this "College / Program graduate" and its profile established? ➔ accomplish the mission and meeting societal and national agenda, and workplace requirements
WHO?	• Who do the defined outcome measurements? • Who makes use of the measurements for informed decision-making? • Who takes action on these measured outcomes for follow-up or developmental planning?
WHERE?	• Where will the responsibilities and accountabilities be assigned to in the organizational entity? • Where will the evidential "processes" and "results" be measured?
WHEN?	• When are they measured? • When are the outcomes used?
HOW?	• How is the "College / Program graduate" and its profile determined? • How are the "College / Program graduate" outcomes measured and assessed? (SLO ➔ course and program specifications ➔ teaching and assessment pedagogy ➔ achievement of SLO ➔ use of findings to define the graduate effectiveness
ULTIMATELY	**"EFFICIENCY of PROCESS" AND "EFFECTIVENESS of RESULTS" affecting the "outcomes that define and underscore the HEI / College / Program Graduate accomplishment and achievement" ➔ GRADUATE EFFECTIVENESS**

Figure 3: Assessor Frame of mind

The assessor basic mindset is illustrated by the "Frame of Mind" of the assessor (Figure 3) and espoused in the basic research mindset of the assessor "critical and analytical thinking" assessment frame of mind as:

1. ***WHAT*** **–** What "Processes" in terms of its systems, mechanisms, techniques, plans, policies, procedures are in place to accomplish and achieve "WHAT they intend to do".
2. ***WHY*** **–** The Processes are designed and developed to accomplish and achieve the "WHAT is the purpose" of the strategic or operational intent. This is the starting place where any assessor will begin, to start the analysis and assessment with a good understanding of HEI, College or Program of the following:
    a. **Vision –** This defines the "What we WANT to be";
    b. **Mission –** This defines the "What we CAN be based on our capacity and capabilities" or the "purpose" or the "reason for existence" of the entity;
    c. **Goals –** These are the broad key directional areas of focus of the mission that underscores the whole entity of what areas are the main enablers or pillars that underpin its performance;

d. **Objectives –** These are the SMART part of the goals that underpin or guides the performance metrics in each core area and the subordinate areas of the core areas;
e. *Strategies* – In a strategic management sense, these represent the "WHAT to do and HOW to do" to accomplish and achieve the SMART Objectives, the goals, and ultimately the mission of the HEI, college, or program. These are the strategic "core processes and their sub-processes" to create and deliver educational value.

3. ***WHO –*** Once the strategies have been defined, the human attributes of WHO, the people, are assigned responsibilities and accountability of people with capacities and capabilities or in human resources terminologies "putting the right person in the right job".
4. ***WHERE –*** Once the human capacities and capabilities needs have been defined and required of core processes and expected results accomplishments, the physical structure will be defined to undertake the core processes value-added actions and accomplishments.
5. ***WHEN –*** The key to this is the timing or time frame of the actions that take place and the timing or time frame of the process efficiencies measurements to accomplish the mission and the goals. The main tenet here is the "management through measurement" as these timely measurements will support informed decision-making.
6. ***HOW –*** The key to this is to identify what systems, mechanisms, techniques, policies, and procedures are in place that identifies the "core processes that add value" efficiencies and the "results" effectiveness.

Based on the research mindset, the assessor will start "putting the parts and pieces" together to come up with a holistic approach to audit and assessment (Figure 4). The assessor will begin with the determination and understanding of the HEI mission, goals, and objectives. This HEI level mission and goals determine or guide the collegial mission, goals, and objectives, all the way down to the programmatic mission, goals, and objectives. The key is that they are "aligned" which represents the beginning of the audit trail of integration.

AUDIT Trail – At the program level, the program is required to determine and specify its SMART objectives (Approach). These objectives are the "rally point" of both the processes that need to be created and to deliver (Deployment) on the educational value. The educational value is student effectiveness. This student effectiveness as the key measure of students' performances is constituted from the learning outcomes at the program and course levels (the PLOs – Program Learning Outcomes, with the CLOs – Course Learning Outcomes mapped to the PLOs) in the PLO/CLOs matrix. This PLO/CLOs matrix is to show that all courses CLOs within the program contributes to the program PLOs. For each course, the teaching strategies are defined by the teaching methods of lecturing, case study, simulations, and observations or practical that are underscored by its CLOs. The teaching strategies are mapped to the assessment methods that can be exams, case studies, projects, and quiz. For each of the assessment methods used, the types of questions used in multi-choice formats, fill-in-the-blanks, or essays are

mapped to determine which of the CLOs are measured. The tabulation of the scoring based on the response to these assessments forms part of the overall determination of the different types SLOs accomplishment like knowledge, skills, critical thinking, analytical thinking, numeric & computation skills, communication, all of which are zeroed into the SCI (Student Competency Index) as the key result measure of student effectiveness. All these in turn serve as measures of performance accomplishments of the program objectives.

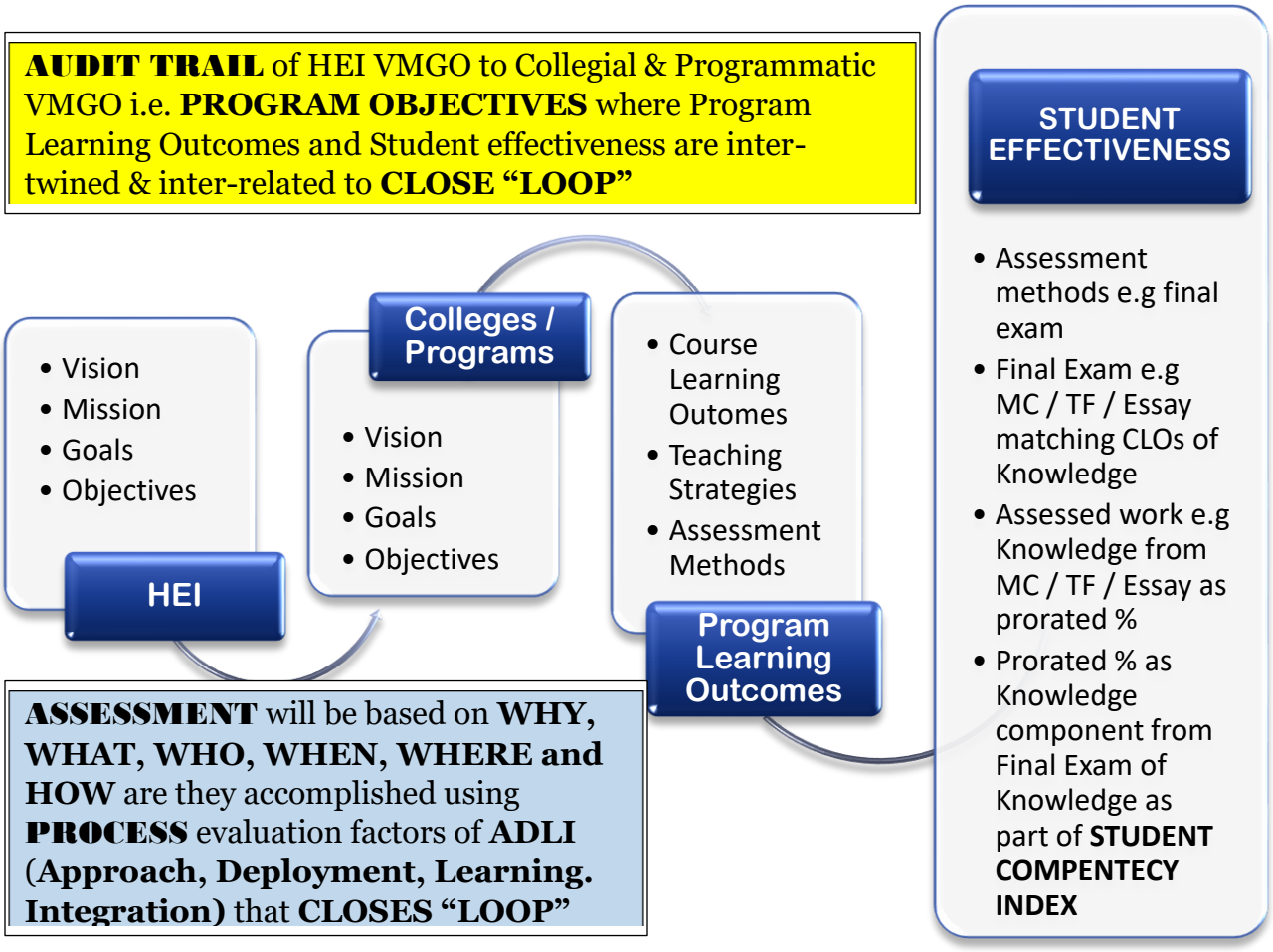


Figure 4: The Audit Trail and Assessment within the Assessor Frame of Mind

ASSESSMENT – In the case of assessment of the overall process as shown in the audit trail, if all those "Student Competency Index" components of learning outcomes identified in the PLOS/CLOs matrix with teaching and assessment methods specifications and measurements implemented (the APPROACH and DEPLOYMENT), it correlates with the maturity of the processes and practices. In addition, after each course, there are two things to determine if personal learning by the student as indicated by the SCI, and that of the instructor of courses of improvements to be taken by the instructor of each of the individual improvements or development of the students or the course context and

content. This will also contribute to the organizational learning when they are aggregated to determine the performance of all sections, within a course, all courses within a program, and all programs with a college. These can also serve as internal benchmarking of performance-critical to organizational learning in accomplishing the course/program/college and HEI goals and objectives (LEARNING and INTEGRATION).

Two Generic Assessment Rubrics

(1) DEMING CYCLE PDCA RUBRIC

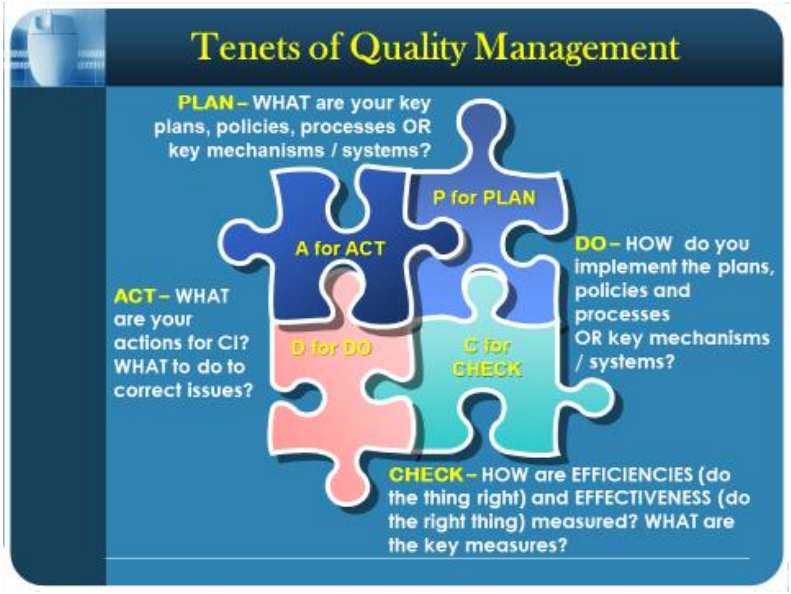


Figure 5: The Tenets of Deming PDCA Cycle

Walter Shewhart (Shewhart, 1939) discussed the concept of the continuous improvement cycle (Plan Do Check Act) in his 1939 book, "Statistical Method from the Viewpoint of Quality Control". The Stewart cycle (PDCA) was modified by Deming to what is now referred to as the Deming Cycle PDCA (Plan, Do, Check, Act) or the modified version of PDSA (Plan, Do, Study, Act) (Deming, 1950 and 1993). It is a key and frequently used continuous improvement tool by all assessors. The key focus is to find closure to "Close the loop of PDCA" (Moen, et.al, 1991; Langley, 2009) (Figure 5) of any academic plan and solution by determining the:

1. ***PLAN –*** The PLAN represents the WHAT & WHY for planning as:
    a. The WHAT calls for identifying the problem faced by the HEI, college, or program to be examined, formulation of a specific problem statement to clearly define the problem, setting attainable goals and measurable objectives, identify stakeholders, and developing necessary communication channels to communicate and gain approval for the plan implementation.
    b. The WHY is to divide the overall system into individual processes and map the process by brainstorming potential causes for the problem, collect and analyze

data to validate the root cause, formulation a hypothesis, and verifying or revise the original problem statement.

2. ***DO*** **–** The DO covers the development of solutions or the processes by establishing the implementation and the success criteria, designing processes and sub-processes to "get work done to accomplish the goals and objectives, and gaining stakeholder support for the chosen solution in the form of key processes.
3. ***CHECK*** **–** The CHECK of evaluation of the results gathering/analyzing data on the solution and validating the processes accomplishment that is the efficiency of the process to achieve the desired goals which is the effectiveness of the results. If it achieves the goal, then go to Act, if not go to Plan.
4. ***ACT*** **–** The ACT calls for implementing the full solution and capitalize on new opportunities. This is to identify the systemic changes and training needs for full implementation, plan for ongoing monitoring of solutions, and continuous improvements or improvement opportunities.

In the assessment process, the assessor's mindset to "Close the Loop" is to:

1. ***Plan & Do*** **–** Ask for the plans in support of the HEI mission and goals, determine how the HEI implement the plan in terms of its key processes, mechanisms, systems or technique, policies, procedures, and people;
2. ***Check & Act*** **–** Request for the HEI to demonstrate the efficiencies and effectiveness of the implementation of their processes and the results that will advise on the future course of actions or opportunities for improvements.

(2) PERFORMANCE EXCELLENCE RUBRICS

Another main set of a rubric that is beginning to find traction in the assessment of the academic cores is the Education Criteria of the MBNQA (Malcolm Baldrige National Quality Award) Performance Excellence Standards (NIST, 2018). This is one of the two main Performance Excellence frameworks used by many countries in managing and assessing the performance of profit and non-profit business entities leading to the National Quality Awards. Seven Education Criteria serve as basic requirements that specify subsets of overall requirements or key or comprehensive core areas of the criteria. Each overall requirement defines sub-ordinated but more definitive and specific itemized multiple requirements. The Criteria have two main sets of Process criteria which are enablers and the Results criteria that are the statistical data or performance metrics that serve as key measures of performance.

Process-Based Assessment (Figure 6) – The main aim is to determine how the HEI or College has planned, executed, and achieved the Items, Criteria and Standards requirements based on systematic processes that represent the EFFICIENCIES of the processes to create and add to the educational value:

- ***AUDIT of Process*** – Based on the Audit, the aim is to find answers to whether the processes defined substantiate what is and what is not complied with or conformed to the Standards requirements. In this case, then, the assessment is either "0" or the beginning of something being planned or is in place to meet the requirements.
- ***ASSESSMENT of Process*** – For Items that are complied with, assessment of the processes efficiencies is done by determining:
  - Whether the systems, mechanisms, techniques, plans, policies, and procedures underscore the PROCESS of "What has been done or are in place and how it has been SYSTEMATICALLY done" ***(APPROACH).***
  - Whether all personnel in the work units (DEPLOYMENT) apply the systems, mechanisms, and tools used comprehensively in all work units. This is important as it points to all personnel's understanding of the process and "walk the talk" of using the same process to accomplish a unified set of strategic or operational goals.
  - Whether there are new or continuous improvements or innovations, these are the indications of ***(LEARNING).*** This learning aspect is unclear in the PDCA approach. This learning aspect has two main aspects of organizational learning and personal learning. Regardless of which, both should contribute to incremental continuous improvements or radical changes that constitute innovations. This innovation is the leapfrogging to a new "S" technology or learning curve that is a core of the performance excellence framework.
  - Whether the actions and activities are reviewed interactively with other Criteria, Standards, or work units ***(INTEGRATION).*** This integration ensures that all aspects of the organizational entity work together cooperatively and collaboratively as a holistic whole (that is the sum of the whole being greater than the sum of the parts) towards the same directional strategic or operation goals.

The framework of analysis is based on the ADLI (Approach, Deployment, Learning, and Integration) as evaluative factors or rubrics of assessment of each of the key or core processes in the academic entity to accomplish or achieve its mission and goal. However, seemingly independent, the ADLI is an iterative and integrative set of interdependent albeit progressive criteria that shows progressive maturity. The rationale is that the approach that is systematic and effective means that it demonstrates the beginning of the maturity of the deployment that reaches all units. If there is a systematic and effective approach that is well deployed, it should pave the way or foundation of incremental and continuous improvements or radical changes brought about by innovation. This effectively forms the "learning" aspects that should be well integrated from the organizational to personal levels to accomplish the organization's strategic or operational goals.

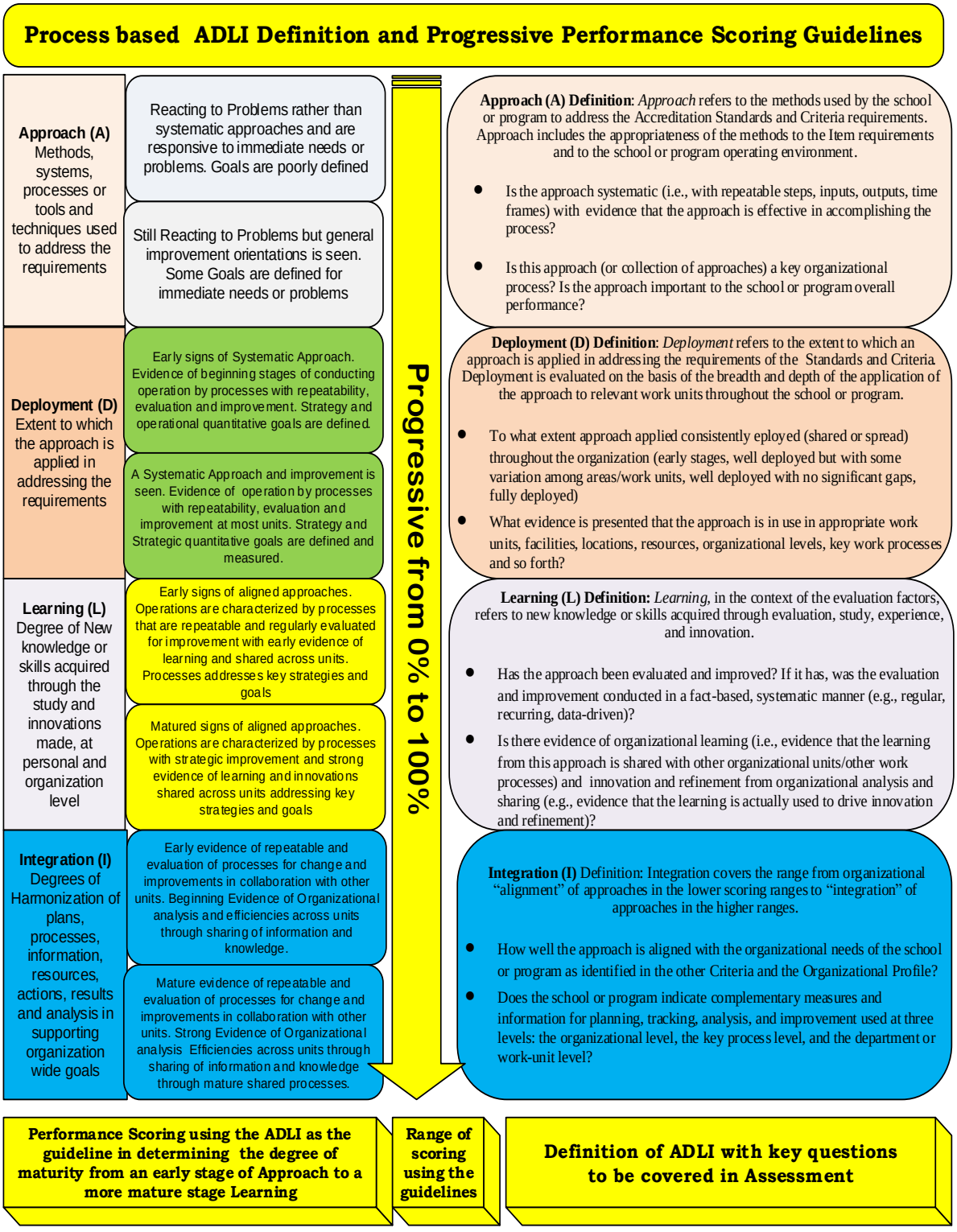


Figure 6: Definition of ADLI and the progressive scoring based on Maturity of Process

Source: Adapted from NIST (2015), *Malcolm Baldrige National Quality Award 2015/2016 Criteria for Performance Excellence*, National Institute of Standards and Technology, US Department of Commerce, Washington, D.C., Available at: www.nist.gov/

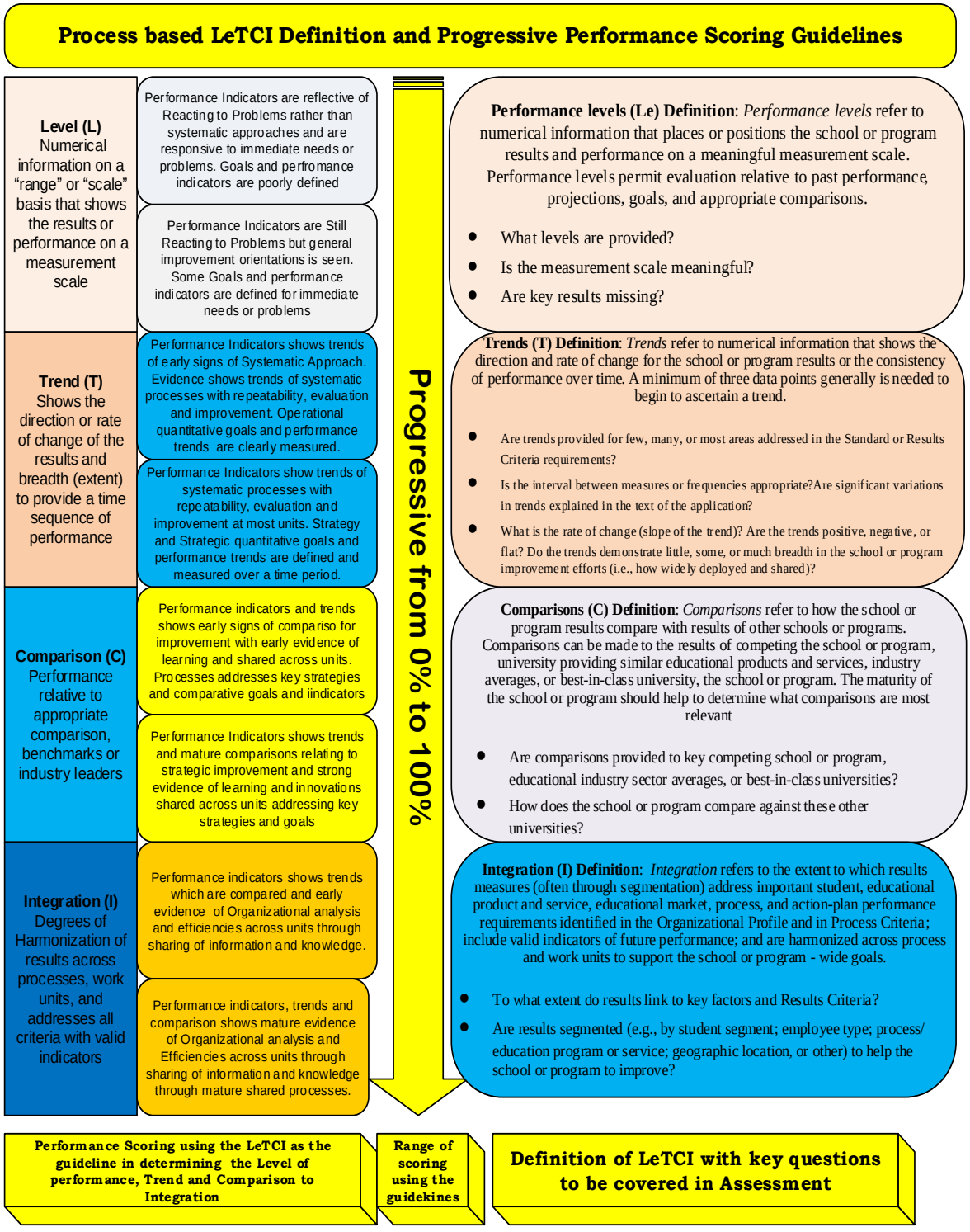


Figure 7: Definition of LeTCI and the progressive scoring based on the degree of performance

Source: Adapted from NIST (2015), *Malcolm Baldrige National Quality Award 2015/2016 Criteria for Performance Excellence*, National Institute of Standards and Technology, US Department of Commerce, Washington, D.C., Available at: www.nist.gov/

Result-Based Assessment (Figure 7) – The main aim is to determine what performance level and trend the HEI, college, or program has achieved on the Standard requirements as evidenced by the systematic and effective processes (Process-Based Criteria) to create and deliver on educational value. The key here to the educational values is the "result" of the process creation and delivery of these values. These can be statistical data or performance metrics. This is the EFFECTIVENESS part of the process, which are evidenced by the Statistical data and Performance Metrics:

- Based on the Assessment of the Process-based Criteria, a high scoring criterion based on an agreed-upon scoring rubrics will mean that there is evidence of a stated level of performance and that there is at least a trend analysis of 2 to 3 years that is also comparative.
- For both the Statistical data and Performance Metrics, assessment is done by determining:
  - The level of performance is based on the "range" for Statistical data and Performance Metrics used and the "level" ***(LEVEL)*** for each of these performance metric accomplished or achieved.
  - Whether there is a trend analysis of performance throughout 1 to 3 years that shows a positive or normal trend ***(TREND)*** for each of the Statistical data and Performance metrics measured.
  - Whether there are any benchmarks or best practices used for comparison, and Statistics or Information of the comparison ***(COMPARISON)*** to determine how well the Statistical data and Performance Metrics is doing in comparison to internal or external or industry benchmarks.
  - Whether the Statistical data and Performance Metrics are reviewed interactively with other Criteria, Standards, or work units ***(INTEGRATION)*** to show alignment and integration across all Statistical data and Performance Metrics, that accomplish the same sets of goals and objectives.

(3) Comparisons between rubrics of Deming Cycle PDCA and Performance Excellence ADLI and LeTCI

Most of the existent continuous improvements tools or techniques like TQM, Six Sigma, and Lean Management (Andersson, et.al., 2006), for quality and continuous improvements, have their unique features concerning the main theory, approach but are mostly similar especially concerning origin, methodologies, tools, and effects. These range from the TQM is a management system consisting of values, methodologies, and tools to increase external and internal customer satisfaction with a reduced amount of resources, (Hellsten and Klefsjo, 2000). Six sigma is defined as "a business process that drastically improves their bottom line by designing and monitoring everyday business activities in ways that minimize waste and resources while increasing customer satisfaction"(Magnusson et. al., 2003). NIST (2000) defines

Lean Management as "A systematic approach to identifying and eliminating waste through continuous improvement, flowing the product at the pull of the customer in pursuit of perfection". All these have the main fundamentals of continuous improvements through key processes of minimizing waste and optimizing resources all aimed at improving customer satisfaction and financial results.

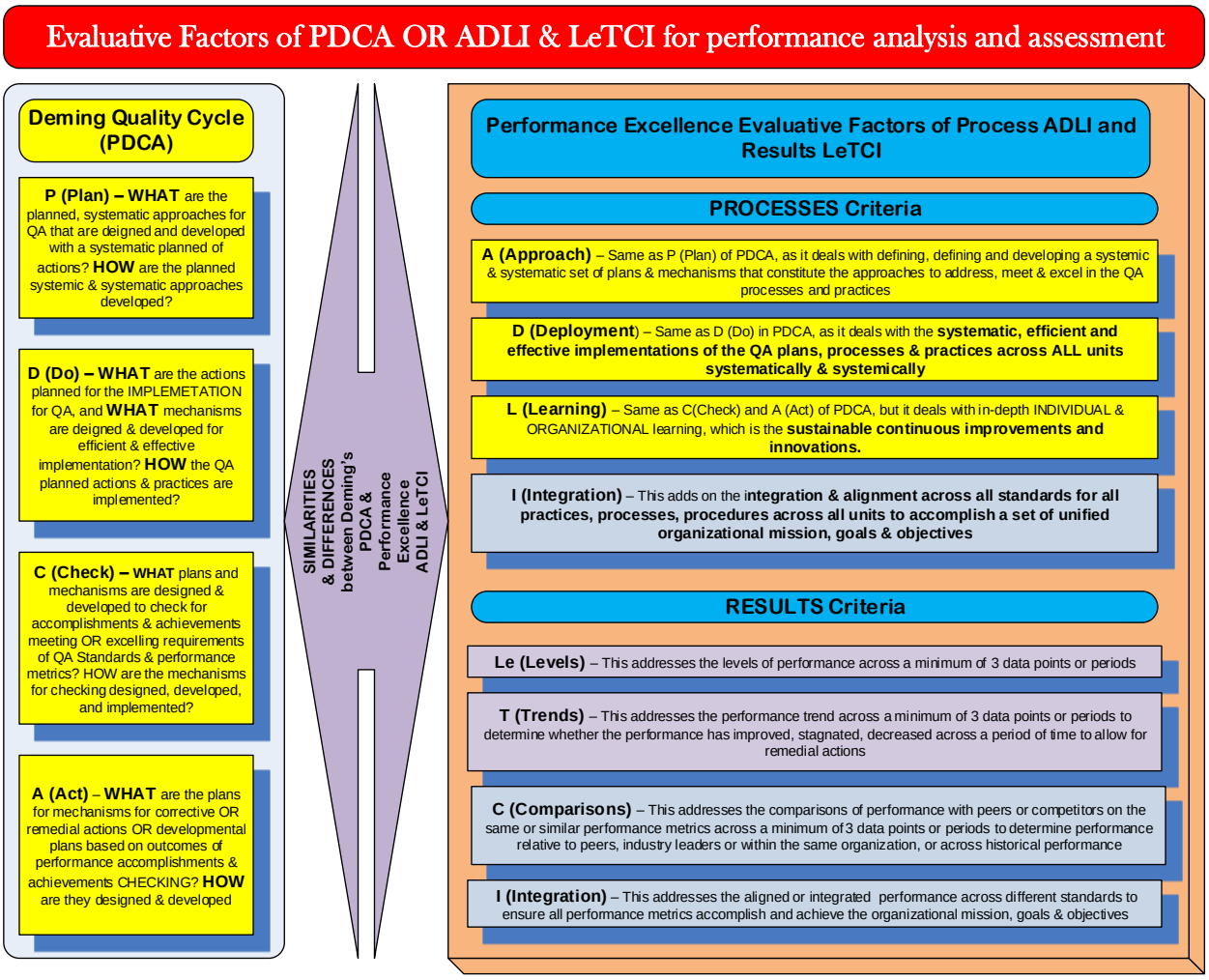


Figure 8: Comparison of the PDCA and Performance Excellence ADLI and LeTCI

While there are numerous contending continuous improvements tools, they are reliant on two main aspects of improvements of the "processes or means" to an end, the results. The processes are the efficiencies of the basic systems, approaches, techniques, mechanisms, policies, and procedures as the key means to the ends that are the results. These results are the effectiveness of the outputs and outcomes desired of each of these tools. The basic rubrics of Deming Cycle PDCA and the Performance Excellence Process ADLI and Results LeTCI have been widely used to frame the continuous improvements and innovations of these tools. While the PDCA and

ADLI & LeTCI have the same fundamentals for continuous improvements, the rubrics similarities and differences (Figure 8) are in:

(a) **Similarities –** Key similarities of the approaches, systems, mechanisms, tools, techniques that are the means to the ends are in the PDC and ADL of both rubrics. All these focus on the systematic and effective approaches that are planned and implemented through its deployment and are checked for improvements. While the CHECK and ACT aspect of the PDCA is the determination of whether the implementation yields results of continuous improvements, there appears to be a question that it might or might not lead to learning on a longer-term basis. Whereas the LEARNING aspect ADLI highlight two main important aspects both improvements and innovations of: (i) organizational and personal learning as opposed to just continuous improvements aimed at incremental improvements along with the same "S" Learning Curve, and (ii) the more radical change expected of innovation to leapfrog of a new "S" Learning Curve.

(b) **Differences –** The key aspect of the ADLI integration facet underscores a very important trait of alignment and integrated aspects of systems, mechanisms, plans, policies, and processes interactions and relationships across systems and sub-systems, the interrelatedness of goals leading to the same directional mission that is understated in the PDCA rubrics. This integration underlies the importance of "the sum of the whole is greater than the sum of the pieces". A key feature imminently clear in the PDCA rubric is the measurement aspects that are highlighted by the LeTCI of measurements of the results or statistical data and performance metrics. This underscores the importance of the tenet of "management through measurements", which means that for an entity to be managed well, it must measure its performance to determine its degree of performance in terms of its level, trend, and comparisons with internal and external benchmarks and integration.

Both of the rubrics frameworks have the same fundamentals for the assessment practices in determining and assessing continuous improvements on any entity. Both of them are powerful continuous improvements tools, but they are only as good as the depth and width of experience of the assessor, the knowledge and skills of the assessors in getting the rubrics to "work its magic" to determine the entity performance against the Standards and Criteria. This means that all frameworks or rubrics theoretically work, but practically the rubrics are only as good as the assessors' competencies. The PDCA is a much more simplistic and widely used rubric in most academic assessments. On the other hand, the Performance Excellence rubrics are more objective in highlighting the "process as the means to an end which is the results". Both the "means to an end" are objectively measured for processes efficiencies and results effectiveness that is more subjective and open-ended in the PDCA rubrics.

Systematic Approach of Assessor in Assessing a Standard

Figure 9: Systematic approach of Assessor's work

Source: NIST, (2015), *MBNQA Education Criteria for Performance Excellence,* Step-by-Step Instructions for INDEPENDENT REVIEW Scorebook Preparation, National Institute of Science and Technology US Department of Commerce, Washington, D.C., Available at: www.nist.gov/

Assessment does not mean just reading the SSR and score its performance. In the Performance Excellence methodology, there are stringent mechanisms that guide these assessments. To kick-start any assessment, the assessors normally adhere to a basic framework of assessment that they have been trained thoroughly and stringently in. There are certain systematic approaches or methodologies (Figure 9) that all assessors, regardless of frameworks, use to create and deliver on the final PAR (Performance Assessment Report) as follows:

STAGE 1 – INDIVIDUAL REVIEW

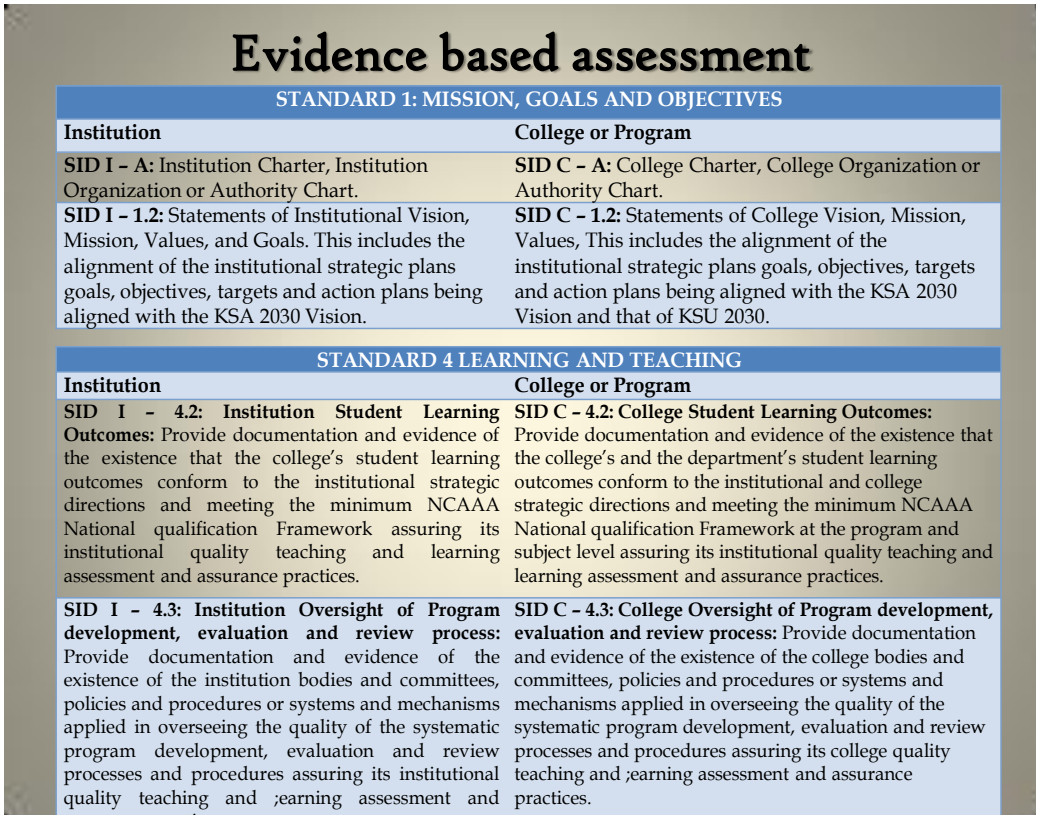
STEP 1: When the assessor gets the SSR (Self-Study Report), the first thing that s/he does is to read each of the Standards manual and its Criteria and Items requirements. The main objective is to refresh and gain a common and strong understanding of the Standards requirements. The Standards is the main rallying point that all assessors use as the guide for addressing issues or differing interpretations of the evidence or justifications arising from the assessment.

STEP 2: The assessor will then read the SSR to get a "general feel" of what the HEI or program has developed or justified in their performance with evidence in their SSR. A second reading will see the assessor reading in more detail supported with

highlights/post-it/underlining/margin comments to highlight key areas of "strengths or opportunities" to be stressed in the analysis.

STEP 3: In the third reading, the assessor will start analyzing the SSR to identify areas of "strengths" or "opportunities for improvements. S/He will conduct a preliminary performance assessment based on ADLI for process-based criteria or LeTCI for result-based criteria.

a. As assessment is evidence-based whereby one would need to determine the facts and evidence which is the Statistical Data, Information, and Documentation needed (Figure 10). A rule of thumb is to look at the criteria and standards requirements and analyze them holistically, to determine the MAJOR or Comprehensive evidence that can directly or indirectly support each of the items and criteria and the overall standard.



Evidence based assessment

STANDARD 1: MISSION, GOALS AND OBJECTIVES	
Institution	**College or Program**
SID I – A: Institution Charter, Institution Organization or Authority Chart.	**SID C – A:** College Charter, College Organization or Authority Chart.
SID I – 1.2: Statements of Institutional Vision, Mission, Values, and Goals. This includes the alignment of the institutional strategic plans goals, objectives, targets and action plans being aligned with the KSA 2030 Vision.	**SID C – 1.2:** Statements of College Vision, Mission, Values, This includes the alignment of the institutional strategic plans goals, objectives, targets and action plans being aligned with the KSA 2030 Vision and that of KSU 2030.

STANDARD 4 LEARNING AND TEACHING	
Institution	**College or Program**
SID I – 4.2: Institution Student Learning Outcomes: Provide documentation and evidence of the existence that the college's student learning outcomes conform to the institutional strategic directions and meeting the minimum NCAAA National qualification Framework assuring its institutional quality teaching and learning assessment and assurance practices.	**SID C – 4.2: College Student Learning Outcomes:** Provide documentation and evidence of the existence that the college's and the department's student learning outcomes conform to the institutional and college strategic directions and meeting the minimum NCAAA National qualification Framework at the program and subject level assuring its institutional quality teaching and learning assessment and assurance practices.
SID I – 4.3: Institution Oversight of Program development, evaluation and review process: Provide documentation and evidence of the existence of the institution bodies and committees, policies and procedures or systems and mechanisms applied in overseeing the quality of the systematic program development, evaluation and review processes and procedures assuring its institutional quality teaching and ;earning assessment and	**SID C – 4.3: College Oversight of Program development, evaluation and review process:** Provide documentation and evidence of the existence of the college bodies and committees, policies and procedures or systems and mechanisms applied in overseeing the quality of the systematic program development, evaluation and review processes and procedures assuring its college quality teaching and ;earning assessment and assurance practices.

Figure 10: Samples of Evidence that Assessor will look for

Source: KSU, (2017) KSU-QMS Quality Management System: Handbook 2 on SID Statistics, Information and Documentations, 4th Edition, May 2017, King Saud University Press, Riyadh, KSA.

b. **EXAMPLE 1 of assessing the research standard –** One of the key requirements in the performance of assessment is a Research Plan that should comprehensively address and cover all the main criteria in the research standard. Once the main evidence is found, which is, in this case, the research Plan, the assessor will use the 5 "W" and the 1 "H" approach to "Close the Loop" for Research by

determining, analyzing, assessing, and scoring the performance of the Research Plan as supported by evidence using ADLI and LeTCI of the following:

i. Is there a research plan (which is the approach) used? ***(Approach of ADLI Process)***
ii. Is the research plan implemented? ***(Deployment of ADLI Process)***
iii. How is the research plan implemented and utilized to address the criteria and the requirements of the item? ***(Deployment and Learning of ADLI Process)***
iv. What are the main milestones or achievements in terms of the key measures of effectiveness? ***(LeTCI of Result)***
v. Are there any key strengths or opportunities for improvement? ***(Deployment, Learning, and Integration of Process)***
vi. What sort of new or further improvements or innovations is needed to bring about continuous improvement? This is the development plan. ***(Learning and Integration of Process)***

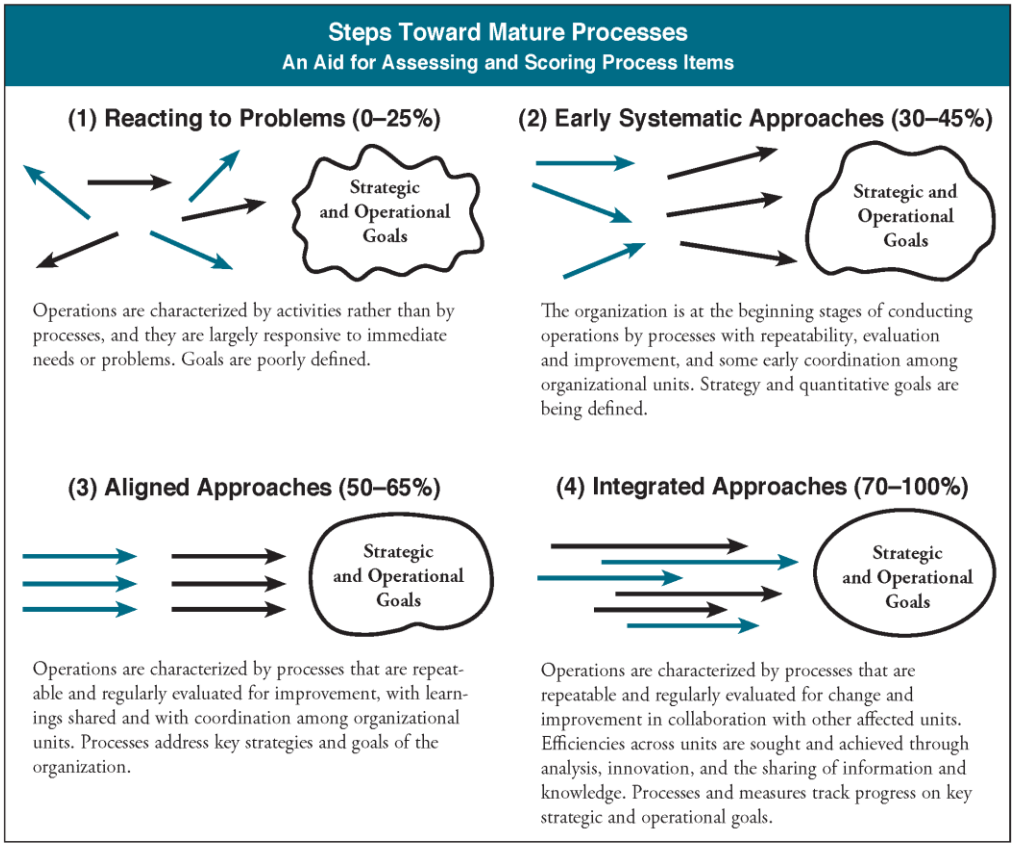


Figure 11: Guidelines of performance scoring based on MATURITY of Process

Source: NIST, (2016), *Baldrige Performance Excellence Program: 2015 – 2016 Baldrige Performance Excellence Framework: A Systems Approach to Improving Your Organization's Performance*, National Institute of Standards and Technology, US Department of Commerce, Gaithersburg, MD, http://www.nist.gov/baldrige

Performance scoring of the process is based on the degree of maturity of the process itself (Figure 11). This degree of maturity is reflected in the evidence as to whether the HEI or program demonstrates the Range 1 (0% to 25%) and 2 (30% to 45%) performance band of starting on "beginning of a systematic and effective approach" that guides the accomplishment. All accomplishments and achievements use the HEI or programmatic strategic goals as the "flag pole" as the "terminal point" of a set of milestones to be attained. A more mature approach is demonstrated when most of the processes are aligned or integrated towards the accomplishment of the strategic or operational goal that is in Band 3 (50% to 60%) and 4 (70% to 100%).

c. **EXAMPLE 2 of Plan of Enquiry for an academic program special or focus area –** Here are some sample key evaluation questions on the focus area of student effectiveness in an academic program (this example combines these two closely associated questions):

   i. How well do learners achieve?
   ii. What is the value of the outcomes for key stakeholders, including learners?

SAMPLES of some possible inquiry questions:

- ✓ What is the extent and quality of the information on learner progress and achievement and how convincing do, they serve as evidence of achievements? ***(Approach and Deployment of Process)***
- ✓ How well is the information interpreted to understand learner achievement in terms of 'met needs' as guided by the "Term of Reference" which is the mission and goals? ***(Approach and Deployment of Process)***
- ✓ What use is made of this understanding for program design or improvement purposes once the accomplishments have been met? ***(Learning and Integration of Process)***
- ✓ What evidence is there of actual improvements in shorter-term outcomes/outputs (e.g. course and qualification completion)? ***(Deployment, Learning, and Integration of Process)***
- ✓ How well does the school or program make the connection between longer-term outcomes and the shorter-term outcomes (outputs) of tertiary study meeting the aims of the mission of the HEI and goals? ***(Integration of Process)***
- ✓ How well does the school or program determine the value of the longer-term outcomes in terms of employers and business, possible further study, or positive contribution to local and wider communities? ***(Integration of Process)***

- ✓ How well does the school or program use self-assessment information to understand and improve performance in this area? ***(Learning and Integration of Process)***

SAMPLES of some possible sources of evidence, statistical data, or performance metrics are:

- ✓ Employment outcomes, career advancement, creative enterprise, voluntary work, community participation, further achievement in scholarship, research, publications, or awards? (taken from alumni information, graduate surveys, employer surveys, economic trend data, societal trend data, census data, etc.) ***(Level and Trend of Result)***
- ✓ Trends from learner assessment information, improving trends over time that are crossed referenced to other relevant programs and schools or programs, evidence that demonstrates that the school or program uses benchmarking information to revise/set its goals and expectations appropriately. ***(Level, Trend, and Comparison of Result)***
- ✓ Evidence and Trends of positive changes in literacy and numeracy, concentration and study skills, communication and interpersonal skills based on the Program/Course Learning Outcomes including learner progress/ educational value-added guided by the Program Objectives and higher-level HEI goals. ***(Level and Trend of Result)***
- ✓ Evidence of positive changes in motivation, life skills, self-management, physical health, cultural awareness, sense of belonging, community engagement, family relationships ***(Level, Trend, Comparison and Integration of Result)***
- ✓ Evidence is drawn from publications, citations, research outputs, consultancies, presentations, cooperative ventures, new technologies, new or improved industry/business processes and products, community initiatives. (***Comparisons and Integration of Result)***
- ✓ Trends in economic data, employment statistics, health statistics, education participation and outcomes, census data. (***Comparisons and Integration of Result)***

STEP 4: In Individual Reviews, all assessors must complete a comprehensive analysis and assessments of all the Standards in the Self-Study Report individually. These analyses and assessments are recorded in the worksheets provided by the accreditation agencies to the assessor to use to record their analysis and assessment that forms the beginning of the development of the consensus leading to the final report. In the assessment of Standards, Standards are assigned to two assessors with one as the Standard Lead, and the second one as Standard Back. The Standard Lead will develop

Version 1 of the analysis and assessment of each Standard that contributes to the PAR in terms of Value Added Comments.

STAGE 2 – CONSENSUS REVIEW

STEP 5: In practice, during the Consensus Reviews, there are two types of consensus as follows:

- ✓ ***Development of Versions 1 (V1), Back (VB), and 2 (V2) analysis and assessment between two assessors –*** Once the Standard Lead has developed the Version 1 from Step 4, it is sent to the Standard Back who will review, add on, modify based on the inputs of all assessors, and come up with a Version Back (VB). Using the Version Back (VB), the Standard Lead will agree to, refine or modify and develop a Version 2 (V2) which is then put to the whole team for consensus.
- ✓ **Consensus by Team –** When all the Versions 2 (V2) have been developed, the Team Leader will initiate the Consensus Meeting whereby all the team members will come together. The whole team will go through each of the analyses and assessment of each Standard and its Items as recorded in Version 2 (V2). In this part of the overall analysis and assessment, both the Standard Lead and Standard Back will lead the discussion to get a consensus agreement of all team members for each Standard under its assigned responsibility. The resulting version is the Version Consensus (VC) that will be the core and main analyzed and assessed Value Added Comments for that Standard to be finalized in the final report. This seemly time-consuming and time easting process has very significant importance in vetting the analysis and assessment in four progressive versions that only strengthen the assessment process through consensus building.

STAGE 3 – SITE VISIT and FINZALIZATION of PERFORMANCE ASSESSMENT REPORT

STEP 6: While the assessors have nearly completed to a degree of 95% work done on the final PAR, there are still some additional doubts or evidence that needs more clarifications for "Opportunities for Improvements" and verifications for "Strengths". This gives rise to the SVI (Site Visit Issues) whereby the following are specified:

- ✓ ***Identify the SVI –*** It should be noted that the Site Visit is NOT to just visit or pay a courtesy call or check on missing evidence or statistical data or document. In the process of the analysis and assessment, certain issues need clarification or verification, and due to the time constraint of a 5-days site visit, only key issues need to be identified and addressed. A recommended format is to define the SVI as a "research question"
- ✓ ***Information needed for the SVI –*** There is a difference between "information" and evidence. Evidence can be documents, statistics, and documentation of plans,

policies, procedures, or processes, statistical data, and tables of analysis or performance metrics. Information is what details, particulars, facts, figures, statistics, data are needed to better understand the issue at hand, and not wholesale evidence. The key is what information is needed to answer the research question as raised in the SVI.

- ✓ ***Target Group identified*** **–** The next thing is to define who will be the main respondent(s) to be targeted to get answers to the information as needed of the SVI.
- ✓ ***Specific questions developed*** **–** Based on the SVI, the information needed will be designed and developed into specific questions that provide answers to the research question as formulated in the SVI.
- ✓ ***Update the PAR*** **–** Once the SVI has been clarified or verified, the PAR can be slightly and NOT majorly modified. This is assumed that the whole team of assessors has diligently used the criteria to analyze and assess the performance based on the SSR and submitted evidence to a 95%degree of accuracy and validity previously and not re-working or re-checking evidence.

STEP 7: The last step is the finalization of the PAR, which will contain the Key Theme (summarized most significant to the program" of its Strengths and Opportunities for Improvements, the detailed Value-added comments for each of its Standard and its performance. The value-added comments should meet the criteria of the 4 "A" of Accurate, Aligned, Actionable, and Appropriate within the context of the HEI or program.

Conclusion

In conclusion, the paper has tried to demonstrate the assessment process as part of the accreditation of an HEI, college, or program as seen from the "lens of the assessor". It illustrates the fact that the "assessment mindset" of the assessors' constitution is more focused and scientific and research-oriented than one believes. This paper has attempted to demystify the understanding of the assessors' mindset in the discourse of (a) what and how the assessor perform their assessment work; (b) what tools of Deming Cycle PDCA or Performance Excellence process ADLI & results LeTCI focused evaluative factors are; and most importantly, (c) what and how the assessor's critical and analytical frame of mind formulates their audit rails and assessment methodologies.

This means that the better the understanding of "what and how" the assessor sets their frame of mind or mindset in assessment, the better that one can re-frame or re-construe the self-study as a research-oriented approach. This will strengthen the fundamentals of what a self-study should be. This calls for analyzing oneself objectively with an integrated evidence-based approach that drives the whole entity towards the same directional strategic or operational goals. It underscores the importance of informed decision making of the "management through measurement or by the fact" which is provided by the independent third party objective assessment and value-added comments of the assessors.

Appendix 1: Relevant Questions of the 5 "W"s and 1 "H" guiding systematic assessment

Key Assessment Questions	Types of Questions based on the 5 "W"s and 1 "H" to ensure performance and its measurement:
How well do learners achieve?	**WHAT and HOW do the Learners' achievements implemented and CHECKED for:** ▪ completion formal qualifications ▪ acquisition useful skills and knowledge and develop their cognitive abilities ▪ improvements in their well-being and enhance their abilities and attributes. ▪ Graduates employment, engagement with further study, and/or contributing to their local and wider communities
What is the value of the outcomes for key stakeholders, including learners?	**WHAT and HOW to develop and implement PLANS, ACT on them and CHECK for the performance of:** ▪ Knowledge creation and dissemination ▪ Community development supported ▪ School or Program active engagement with communities • Relevant groups clear identifications and appropriate and ongoing engagement ▪ Relevant groups developments, barriers, and possibilities ▪ Effective engagement encouragement at all levels in the School or Program.
How well do programs and activities match the needs of learners and other stakeholders?	**WHAT and HOW the Program design is reviewed and CHECKED regularly to:** ▪ incorporate ongoing needs analysis ▪ maintain relevance to interested groups and communities ▪ reflect changes in subject content ▪ incorporate relevant teaching practice and technologies ▪ ensure resources are adequate and appropriate.
How effective is the teaching?	**WHAT and HOW effective Learning is effected and CHECKED through:** ▪ environments that are planned and structured for the benefit and needs of learners ▪ activities reflecting the needs of, and engage learners ▪ activities providing opportunities for learners to apply knowledge and skills in a range of relevant contexts ▪ assessment processes that are valid, sufficient, fair, and transparent and which provide learners and teachers with useful feedback on progress.
How well are learners guided and supported?	**WHAT and HOW Learners' services and support that:** ▪ are provided with comprehensive and timely study information and advice ▪ are provided with continued support to assist them to achieve their goals ▪ experience an appropriate range of responses to their well-being needs ▪ experience an inclusive learning environment and teachers relate effectively ▪ experience minimal barriers to learning.
How effective are governance and management in supporting educational achievement?	**WHAT Governance and HOW the Governance supporting educational achievements with CHECKS in place to guide the senior managers and governors of the School or Program to:** ▪ anticipate and respond to change ▪ use results of self-assessment constructively for improvement ▪ balance innovation and continuity ▪ establish a clear organizational purpose and direction ▪ provide effective leadership ▪ allocate resources to support learning, teaching, and research ▪ ensure all policies and practices are legal and ethical ▪ value their staff and put in place appropriate and effective processes for their recruitment and development.

Appendix 2: Samples of Proposed Key Assessment Questions

The proposed Key assessment questions (KAQs) can be adapted as the main tools of external evaluation and review. Along with performance criteria, these tools are used to reach judgments about educational performance and capability in the whole assessment. The assessment has two focuses the "PROCESS and RESULTS". For the Results, some of the Outcome questions focus on the value of the outcomes achieved in school or program.

1. **How well do learners achieve?**

Possible sources of evidence	• Learner achievement data (retentions, completions, etc.) • Destination data • Feedback from learners, staff, and other interested communities or individuals • Outcome information
Relevant sets of Key Performance Indicators	• Outcomes for learners and communities • Fostering effective learning environments • Minimizing Barriers to learning • Managing change strategically • Assessment supports learning • Organizational purpose and direction

2. **What is the value of the outcomes for key stakeholders, including learners?**

For the Process Criteria, the Process questions focus on the quality and value of the key contributing processes in school or program of which some of the key processes are:

Possible sources of evidence	• analysis of stakeholders feedback and graduate data • graduate satisfaction feedback • graduate outcome information • employment or destination of graduate data • analysis of sector benchmarking information
Relevant sets of Key Performance Indicators	• Assessment of supports of learning • Outcomes for learners and communities • Engaging with communities • Providing relevant programs • Managing change

3. **How well do programs and activities match the needs of learners and other stakeholders?**

Possible sources of evidence	• Results of analysis of stakeholder feedback • Entry requirements for courses and programs • Employer feedback on graduates • Feedback from graduates in employment • Learner achievement information (trends over time)
Relevant sets of Key Performance Indicators	• Minimizing Barriers to learning • Assessment supports learning • Engaging with communities • Providing relevant programs • Managing change strategically • Organizational purpose and direction

4. How effective is the teaching?

Possible sources of evidence	• Learner feedback on teaching • Results of peer observation of teaching • Feedback from stakeholders • Interviews with staff and learners • Teaching and learning plans
Relevant sets of Key Performance Indicators	• Fostering effective learning environments • Minimizing Barriers to learning • Assessment supports learning • Managing change strategically

5. How well are learners guided and supported?

Possible sources of evidence	• Learner feedback on the learning environment • Feedback on learner support services • Analysis of information on non-completion rates (attritions) • Learner destination data • Learner and staff opinion
Relevant sets of Key Performance Indicators	• Facilitating learning pathways • Assessment supports learning • Fostering effective learning environments

6. How effective are governance and management in supporting educational achievement?

Possible sources of evidence	• Reports, minutes, and records of the activities of the governance body • Records and reports of consultation e.g. with communities, employers, management • Strategic and business plans with evidence of the approach to meeting identified needs and aspirations
Relevant sets of Key Performance Indicators	• Engaging with communities and stakeholders • Managing change strategically • Organizational purpose and direction • Engagement with the faculty and staff, their development and growth

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Family Background and Admission Criteria as the Predictors of University GPA: Evidence from a University in Vietnam

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ABSTRACT

Based on three data sets of information on students of a university in Vietnam, we estimate the predictors of GPA by using the two-stage least squares (2SLS) method. The results of estimation highlight that parents' occupation as farmers and living location in rural areas harm the GPA of students at university (University GPA). Causally, the government does not control or monitor the hours of part-time work of students earning a living cost and tuition fees, which rise dynamically in cities located near the university. The finance support policies for rural students whose parents are farmers still do not serve enough to lessen the financial burden and thus reduce the working time of students. Furthermore, we also find a positive relationship between admission criteria including national university entrance score, high school achievements, English capability, and the university GPA. This might give the idea of improving the admission policy for universities.

Keywords: university GPA, family background, admission criteria, inclusive education

Introduction

The economic reform that Vietnam embarked upon in the late 1980s to change from a centrally planned economy to a market economy has brought many remarkable economic achievements for Vietnam. High and continuous GDP growth rates and successful economic development over the period have resulted in overall improvement of people's welfare and significant poverty reduction. It is expected that by 2020 Vietnam will attain the status of a middle-income industrialized country while science and technology (S&T) are key driving forces of the country's industrialization and modernization program.

To achieve these goals, higher education should be considered as a significant issue since it helps to create high-quality human resources for the development of Vietnam. However, economic growth should be beneficial for most people, especially the poor; including accessibilities in higher education for the poor and habitats in rural areas. According to Vu, Le, and Giang (2012), they pointed out that there is inequality of accessibilities in higher education between rural and urban areas, among ethnicities, and among income quintiles. Meanwhile, in our research, we study from a different view, which is the relation between the family background, namely parent's occupation, living locations, and their children's university Grade Point Average (GPA). Our results show that family background harms the children's university GPA. The explanation for such an outcome would be the fact that the financial support of the family was not enough for their children, making the children spend more time for part-time jobs instead of studying.

Vietnamese universities have used the national university entrance exam as the main admission criterion for many years. However, with the changes in higher education admission governance policy, the match between university entrance exam and student performance might be affected, and/or university entrance exam might not be the most affecting predictor anymore. This brings to the demand for improving admission criteria of a university in Vietnam.

The remaining of the paper is organized as follows. Section 2 presents a literature review on the influence of family background and admission criteria on the academic achievement of a student. Details on data and the research methodology employed in the paper are in section 3, while discussion on the results and policy implications will be presented in section 4 and section 5, respectively.

Literature review

The importance of education was validated by all researchers around the world. As a result, almost all families want their children to have a good education, and the children are expected to not only gain a degree from a university but also to graduate with a high GPA. University admission and university graduation are two important milestones, which decide the future of students. However, the students' performances sometimes do not match with the grades they have got in the national university entrance exam; for instance, some students that got high scores in their admission test do not have good achievements in university. Many studies argue

that the admission criteria play a key role in evaluating the performances of students at university. Meanwhile, there are also studies debating that the family background of students is the significant element to predict their performances. Weiser & Riggio (2010) mentioned that family background also has a huge effect on academic outcomes. The issue of how these two factors influence students' study and which one is more important is widely debated. The literature review in this paper focuses on investigating the two factors, admission criteria and family background, and evaluating them to compare with the data in the case of higher education in Vietnam.

The student recruitments of most universities and colleges in the world are based on admission criteria. However, there is a variety of criteria that a university can choose to apply. Gabriel & Marius' article (2011) is the most useful study as they not only present a diversity of worldwide admission criteria but also show that high school grade point average is the only one of the admission criteria that is efficient in predicting academic performance. In that study, baccalaureate exam, high school GPA, Scholastic aptitude/assessment test (SAT) are mentioned as the tests reflect the future academic performances. However, Gabriel & Marius (2011) indicate that a great number of studies attempted to recognize high school grade point average (GPA) and general success in high school as two factors remarkably interdependent with university GPA and graduation. For instance, high school rank and high school GPA are found to be the most effective predictor of success in college (Fletcher, Halpin, & Halpin, 1999).

A large number of other researches indicate that GPA is the most powerful predictor for not only evaluating the academic performances of students but also bearing a strong relationship with family income (Geiser & Santiceles, 2007). Hoffman & Lowitzki (2005) find that GPA is a stronger predictor of success than other standardized test scores for both racial and religious minority students. Gabriel & Marius (2011) in their study also prove that standardized admission tests like the baccalaureate test or the college admission exam reflect student performance in a single evaluation, mean they fail to assess test preparation, repeat test-taking, and other "test wise" strategies aimed at boosting scores. The reason is that these tests do not show the whole capacity of students. Elizabeth et al., (2011) present that some characteristics including motivation; leadership skills, teamwork skills, problem-solving skills, and compassion are not assessed in the university entry tests. Brown & Conley (2007) explain that sections on the exit exams such as the baccalaureate exam measure only a small piece of the knowledge and skills, which are expected from college and employers while GPA can measure the students' ability more comprehensively. Hoffman & Lowitzki (2005) find that high school grades are stronger predictors of success than standardized test scores for both racial and religious minority students. The Maryland State Higher Education Commission (1996) also identifies high school GPA as the best predictor of college GPA among the SAT Verbal score, average grades in high school English and social studies courses. However, the study of Gabriel and Marius is only a pilot study, thus they did not consider the other factors such as socioeconomic status, living location, or parental effects of students.

Some other studies have also included other factors such as gender, age, and marital status. Elizabeth et al., (2011) present that some older students have to work and study as well as join more community activities, thus they might have poorer academic performance than younger students with fewer outside responsibilities. Moreover, in some specific majors like nursing, female students perform better than male students but on the contrary research identified male gender as an indicator of academic performance of undergraduate nursing students (Ali, 2008).

While some researchers argue that the GPA is the best measure of students' academic performances, there are other indicators such as family structure, socioeconomic status, parental relationship quality, parent-school involvement, and parental school aspirations, parental income, parent's investments, childhood development, environment number of children and education of parents. Weiser & Riggio (2010) present that family background features, covering family structure, socioeconomic status, parental relationship quality, parent-school involvement, and parental school aspirations, are the most frequently linked to academic outcomes. Studies explain that family structure is related to academic achievement as children and adolescents from intact families perform better than their peers from single-parent homes on a wide variety of outcomes including grades, standardized achievement test scores, high school completion, and college graduation (Amato & Keith 1991; Amato 2001; Astone & McLanahan 1991; Naevdal & Thuen 2004). Besides, socioeconomic status is strongly linked to academic achievement as well. Researches show that the higher socioeconomic levels students have, the higher grades, better tests achievement, and longer education they get (Gottfried et al., 2003; Matsen et al., 1999; Teachman 1987). Many researchers suppose that the greater cultural and educational resources are enjoyed by higher socioeconomic individuals due to this relationship (De Graaf et al., 1986). However, Cheung & Andersen (2003) indicate that even when controlling for these resources, family socio-economic status still has a powerful impact on educational performance. High-quality relationships between parents and children are featured by positive influence and warmth, emotional support, and the facilitation of independence (Kenny & Sirin, 1987). In addition, parent relationship quality is connected to academic performance, school engagement, and standardized test scores (Dornbusch et al., 1987; Ginsburg & Bronstein 1993; Grolnick & Ryan 1989). Matsen et al., (1999) explain that parent relationship quality provides a strong impact on children's cognitive competence and growing up procedure, thus it has a special and noteworthy relationship with academic achievement. Parental school involvement, which includes parents' participation in school activities, communication between parents and children about school, support of homework, and supervision and monitoring of schoolwork, is a major influence on students' academic achievements as well (Ho & Williams, 1996; Mji & Mbinda, 2005). With the assistance of parents, children will have huge advantages and motivation to get higher academic outcomes including standardized test scores, GPA, and subject-specific grades (Catsambis 2002; Fan & Chen 2001; Ho & Williams 1996; Keith et al., 1993). Parental educational aspirations are also linked to academic performance. Parents with high educational aspirations expect their children to finish high school, be involved in, and complete college, and receive good grades. Higher levels of parental educational aspirations positively bring their children to join more

challenging classes and get higher test scores (Astone & McLanahan 1991; Catsambis 2002; Milne et al., 1986). Furthermore, parental aspirations significantly forecast whether students should continue their education after high school and college completion (Bank et al., 1990; Catsambis 2002; Leung et al., 1987). Although this study presents a great deal of knowledge, it only investigates data from one university. Moreover, the reliance on students' responses is not high because their perception of the parent's expectations maybe not be clear.

Anders et al., (2003) mentioned that there are powerful ties between parental income and education achievements of their children by a quote, which is expressed by politicians many times "Children's life chances should not depend on the size of their parents' wallets. "This study approached the relationship between pupils' school performance and their family background in two interesting ways. The former captures a broad notion of equality of opportunity. It means they study the samples of siblings who grow up together with similar outcomes and in the same neighborhood, including the peers and the schools that were available where they grew up. The latter captures a narrower notion of family background by estimating the relationship between grade averages and parental earnings ("parents' wallets"). They analyzed 13 cohorts of pupils born in 1972-1984 who graduated from compulsory school at the age of 16 between 1988 and 2000. They separately analyzed for father's and family earnings, as well as for boys and girls. Although this study obtained some results, the limitation is that it is based on the old data in Sweden from the 1980s and 1990s when a turbulent era of school reforms occurred.

Orley & Cecilia (1998) also make a study about the interaction between family background and school performance with quite similar evidence that is based on twins. Their results are more specific in terms of the differences between two children and genders. With female twins, the response is that the less educated twin is caused by marriage (or the converse, ''got divorced and needed to get a job''). With males, it is said that the two twins have different interests in occupation. An only a small proportion of the responses, 11 percent, include such explanations of schooling differences as, ''one twin was better at books,'' which might (obviously) be clarified as ability differences (Orley & Cecilia, 1998). In addition, Orley & Cecilia also mention that birth weight may affect childhood development and thus perhaps schooling level attained. This study implies that individuals with higher levels of ability get rather higher levels of schooling. It means that the higher ability individuals may gain a slightly lower marginal benefit to schooling.

The number of children and the knowledge of parents are also significant factors affecting academic performance. There is an interaction between the educational level of parents with the number of children they are born. The quantity of children affects the resource that parents invest in children, which in turn, influences the quality of them. Becker & Lewis (1976) argue that an intention in the education of mothers has a positive effect on the quality but a strong negative influence on the number of their children. The common trust is that vital advances in birth

control knowledge not only remarkably reduce the number of children but also significantly increase their quality.

In short, although the previous studies present many interesting and useful results about the correlation between academic performances and admission criteria as well as family background, the answer has not been fully proved yet. While some studies only focus on the specific fields, others have problems with the number of samples, research scope or become obsolete. Most of the studies are applied to overseas universities where the economy, culture, society, and education are considerably different from those in Vietnam. Therefore, a study about this issue and in particular the case of Foreign Trade University is really important as it can contribute to the future extension supporting the development of higher education in Vietnam.

Research framework and methodology

Research framework

As mentioned above, many studies argue that admission criteria of students play a key role in predicting their performance meanwhile there are also studies debating that family background is the significant predictor. Vietnamese admission higher education governance policy brings about the priority for students from the rural area. However, there is the fact that students from rural areas whose parents' occupations almost are farmers might have to spend time for a part-time job to cover the living cost and tuition fees, therefore, have less time for studying. This paper investigates the impact of family background and location, specifically parents' occupation of farming, on university GPA (Figure 1).

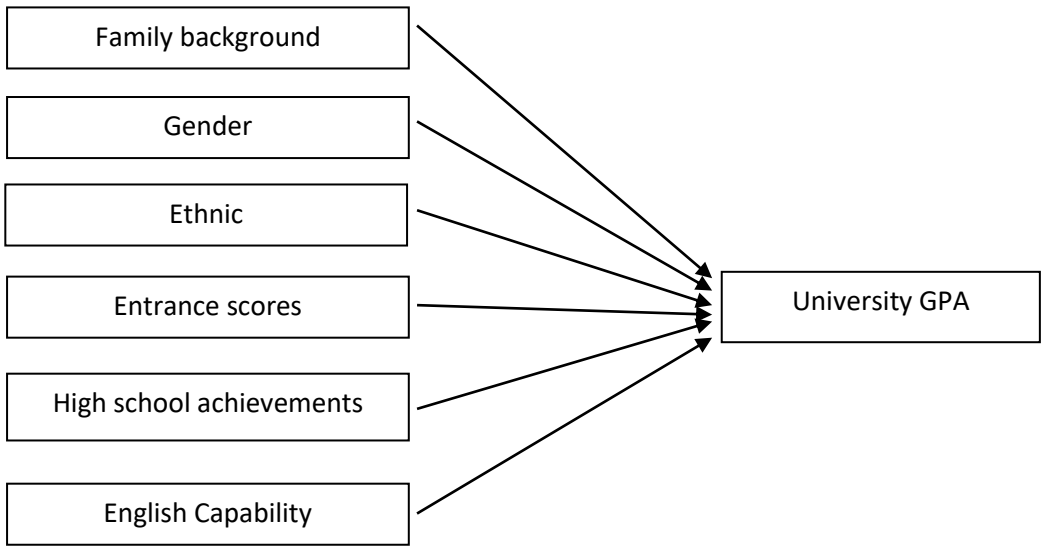

Figure 1: Theoretical Research Framework

Although Vietnamese universities currently provide different admission criteria but almost still use the national university entrance exam scores as the main basis. However, the facts indicate

that the proportion of students who do have not match University GPA and national university entrance exam scores is increasingly significant. This paper studies the admission criteria including entrance scores and other factors such as English capability, high school achievements as predictors of university GPA.

Furthermore, since choosing the blocks of entrance exam as well as study fields might causally identify the gender and ethnic characteristics of enrolling students thus the gender and ethnicity are also considered as control variables to university GPA. The national university entrance exam is divided into different blocks composing of block A0 (mathematics, physics, chemistry), A1 (mathematics, physics, English), D1 (mathematics, literature, English), D7 (mathematics, chemistry, English), and other D (including mathematics, literature and foreign languages).

Data

The paper uses three data sets of students' batch 50 (2011-2015) of Foreign Trade University (FTU). The first data set includes information such as national university entrance point, gender, ethnicity, block test, subjects, national or international prize, TOEIC. The second one contains a cumulative GPA of four years naming college GPA and the last includes information on the student's family background as the year of birth of parents, parental occupation, and the number of siblings in the family. The data is collected from the undergraduate studies department of FTU. In detail, the first data set contains about 2,200 students in which enrollment is 96 percent and it covers the two remaining data sets. The third data set was collected by conducting an email survey, which was sent to all students; however, and only about 1,500 students responded to this survey. Finally, there are around 1,471 observations in our sample with descriptive statistics of the variables as shown in Table 1. Specifically, the average college GPA of students is around 3.27, as 35 percent of the sample achieve excellent study results while 53 percent have good results, leaving 13 percent with average results. Additionally, FTU is the only university having training programs in social sciences, therefore, female students account for 70% of the university's total number of students. Next, a majority of students (97%) are in the Kinh ethnic group, and students in the economic field account for more than half of the total number of students, followed by the business administration field; making banking and finance and business foreign language field in the position of the last place.

In every province in Vietnam (64 provinces), competitions are held for local high school students. According to the results of such competition, the best students will be sent to take the international and national exams in selected subjects. If the students receive the prize, they will be given a priority mark in the national university entrance exam. Thus the international and national prizes are high school achievements considered while recruiting new freshmen for university. The table shows that about 17 percent of students enrolling at the university are those with international and national prizes.

At FTU, all freshmen have to undergo examinations of English capability, TOEIC, except business foreign language in French, Russian, Chinese, Japanese. The average TOEIC of the

freshmen is 500 points. Furthermore, English capability is an admission criterion for programs taught in English.

Two final variables related to the family background of students are the "farmer" variable and the "rural" variable. "Farmer" variable equals 1 if father's occupation is farmer and zero if otherwise; and account for about 20 percent. Similarly, the "rural" variable has the value of 1 if the family lives in rural areas and zero if otherwise. Table 1 shows that there are about 20% of the students whose fathers are farmers and approximately 24% of the sample whose families live in rural areas.

Table 1: Descriptive statistics of variables

Variable	**N**	**Mean**	**Std. Dev.**	**Min**	**Max**
GPA (continuous variable)	1471	3.27	0.29	2.37	3.96
Grade					
Excellence (dummy)	1471	0.35	0.48	0	1
Very good (dummy)	1471	0.52	0.50	0	1
Good and average (dummy)	1471	0.13	0.34	0	1
Female (dummy)	1471	0.71	0.45	0	1
Kinh ethnic (dummy)	1471	0.97	0.16	0	1
Economics (dummy)	1471	0.53	0.50	0	1
Banking and finance (dummy)	1471	0.10	0.30	0	1
Business administration (dummy)	1471	0.31	0.46	0	1
Business foreign language (dummy)	1471	0.06	0.23	0	1
National university entrance point (dummy)	1471	24.05	2.00	14	28.75
A block (dummy)	1471	0.44	0.50	0	1
D1 block (dummy)	1471	0.43	0.50	0	1
Others (dummy)	1471	0.13	0.33	0	1
National prize (continuous)	1471	0.17	0.37	0	1
Toeic/100 (continuous)	1466	5.03	2.91	0	9.8
Farmer (dummy)	1471	0.20	0.40	0	1
Rural (dummy)	1471	0.24	0.43	0	1

Source: Authors' calculation from data

Research methodology

In Vietnam as well as in other countries, the cumulative GPA of students (college GPA) is one of the important criteria, which initially assesses the capacity of students to participate in the labor market. Therefore, we construct a simple model to estimate the factors affecting college GPA as follows.

$$GPA_i = \beta_0 + \beta_1 Farmer_i + \sum_{j=2}^{8} \beta_j Control_{ij} + \beta_9 EntryPoint_i + \beta_{10} NationalPrize_i + \beta_{11} TOEIC_i + u_i$$

Where:

- The university GPA is the accumulated final grades in four years of students with the point scale ranging from zero to four.
- "Farmer" dummy variable equals 1 if father's occupation is farmer and zero if otherwise. We expect that this variable will harm student performance because families do not provide enough financial support for students; hence the students have to spend more hours working part-time to cover their living expenses. Furthermore, in Vietnam, it is very difficult for universities to manage the hours spent on part-time jobs of students or introduce restrictions on the number of hours per week that students can work part-time.
- The control variables include the female variable (1 if students are female,0 if students are male), and the Kinh ethnic (1 for Kinh and 0 for non-Kinh) and group variables related to study field including economics, banking and finance, business administration, and business foreign language.
- The test blocks variables are built on the selection of subjects that contestants decide to take an examination with. For example, block A includes mathematics, physics, and chemistry; D1 includes mathematics, literature, English; others consist of mathematics, literature, and foreign language (non-English).
- The national prize variable is established on whether students achieved the national award or prize when they were in high school. Thus, we expect that this variable will have a significantly positive influence on the university GPA.
- Finally, the variable of English test scores is measured by the TOEIC result of freshmen. We assume that if the student has a higher TOEIC point that the better he/she will access and update new materials in the world and therefore it can positively affect university GPA.

Methodologically, for the first step, we estimate the above equation by the OLS method. In particular, occupation of father variable is the farmer is interesting because we want to answer the question of whether these families provide monthly living expenses for students is less than other families or not enough living costs of a student, they work more hours to get extra income

and thus it may affect academic performance, university GPA. If this is true, the coefficient of a farmer is negative and statistically significant, government or universities should have policies to provide financial support to the students who come from families with parents doing farming and living in the rural areas.

We understand that the model possesses an endogenous problem, which is solved partially by the instrumental variable (IV) method. In our case, the instrumental variable is the "rural" variable and if the parents work in the agricultural sector, the families are more likely to live in rural areas. To determine a valid instrument, we perform the test statistics and the results in Table 2 show that all tests are passed and which means our instrument is valid. Finally, we estimate the "farmer" variable, endogenous variable, using the 2SLS method with the "rural" variable as an instrumental variable.

Table 2: Instrumental Variable Model - Test statistics

	Value	**P-value**
Wu-Hausman F test	7.28662	0.00703
Durbin-Wu-Hausman chi-sq test	7.32014	0.00682
Under identification test (Anderson canon. corr. LM statistic)	83.315	0.0000
Weak identification test (Cragg-Donald Wald F statistic)	87.552*	

*Note: Stock-Yogo (2005) weak ID test critical values: 10% maximal IV size is 16.38; 15% maximal IV size is 8.96; 20% maximal IV size is 6.66; and 25% maximal IV size is 5.53

For sensitivity analysis, our dependent variable, college GPA is classified into three categories, as mentioned in the data section above. According to regulations of the Ministry of Education and Training of Vietnam, GPA from 3.6 to 4.0 is excellent (outstanding); GPA from 3.2 to less than 3.6 is very good and GPA less than 3.2 is good and average. Our oGAP variable receives a value of 1 if the type of grade is good and average; 2forvery good; and 3forexcellence (outstanding). Finally, we use the ordered Probit model to estimate the above equation with the dependent variable, oGPA, and the same independent variables.

Analysis results

Table 3 presents the results of the regression estimations, the first column shows results of OLS estimation, the second column displays the results of 2SLS and the last one reveals results of the ordered Probit model. We interpret the results sequentially from top to bottom in Table 3.

Table 3: Regression estimation results

	(OLS)	(IV[1])	(Ordered Probit)
	GPA	GPA	oGPA
Farmer	-0.0307*	-0.2191***	-0.1535**
	(0.017)	(0.075)	(0.077)
Female	0.1278***	0.1305***	0.4855***
	(0.017)	(0.017)	(0.079)
Kinh	-0.0249	-0.0040	-0.0020
	(0.043)	(0.043)	(0.218)
Economics (base group)			
Banking and finance	0.1083***	0.1170***	0.4579***
	(0.027)	(0.027)	(0.120)
Business administration	0.0279*	0.0273*	0.1392*
	(0.016)	(0.016)	(0.072)
Business foreign language	0.0799***	0.0803***	0.2779**
	(0.028)	(0.029)	(0.138)
A block (base group)			
D1 block	-0.0173	-0.0180	-0.0950
	(0.021)	(0.021)	(0.095)
Others	-0.0991***	-0.1379***	-0.5747***
	(0.026)	(0.030)	(0.130)
National university entrance point	0.0555***	0.0551***	0.2214***
	(0.005)	(0.005)	(0.021)
National prize	0.1467***	0.1386***	0.6093***
	(0.019)	(0.019)	(0.094)
TOEIC/100	0.0243***	0.0174***	0.0962***
	(0.003)	(0.004)	(0.016)
_cons	1.7224***	1.7873***	
	(0.117)	(0.119)	
cut1			
_cons			5.7640***
			(0.574)
cut2			
_cons			7.5057***
			(0.585)
N	1466	1466	1466
pseudo R^2	0.229	0.232	0.113

Robust standard errors in parentheses; * $p< 0.10$, ** $p< 0.05$, *** $p< 0.01$

Source: Authors' calculation from data

Firstly, the results show that if the student's father is a farmer, a negative influence on university GPA and a sign of the coefficient of farmer variable is consistent in all the columns in the Table. In Vietnam, students' parents who work in the agricultural sector or have unstable incomes have

[1]The authors will provide the result estimation in first stage if requested

trouble covering the living expenses for their children to live and study in the city where the university is located. These students can work part-time to earn extra income, which, unfortunately, affects their academic performance. In addition, it is difficult or impossible for universities in Vietnam to manage the number of hours per week spent on part-time jobs of a student as those universities with the higher education system in advanced countries can do. Currently, Vietnam still has policies for poor students with low-interest loans, nevertheless, the effectiveness of such programs should be re-considered.

In terms of control variables, the female students have better performance than male students do. However, this finding should be re-evaluated at other universities as the female student ratio in FTU is very high, around 70%, which may be different in the case of other universities in basic science fields. Besides, we do not see the difference in performance between students from ethnic minorities and the Kinh group. This would probably be because students from ethnic minorities only account for only about 3 percent of the total studied sample. Furthermore, students studying banking and finance; business administration, and business foreign language perform better than those studying in economics. The block A students, who took mathematics, physics, and chemistry in the national entrance exam also have better performance than others except for block D1. The constant is also positive, which implies that the overall students can have a certain level of GPA at around 1.7 out of 4. This can be considered as the minimum GPAs of FTU's university.

In addition to the efforts of students themselves in the learning process at the university, the national university entrance point should also be taken into account since the results show that students who have higher scores in the national university entrance exams, also have higher college GPA and we found it is consistent in all columns. Furthermore, winning a national prize has a positive and strong impact on GPA. Therefore, it can be concluded that the recent policies of the universities are good and appropriate and they help to attract many of these students.

Finally, the TOEIC point has a positive impact on university GPA. The students with a high TOEIC point have better abilities to access documents in English and as a result, they have better performance.

Conclusion and Implications

This paper emphasizes that being born in rural areas in Vietnam and having parents working in the agricultural sector have a negative effect on the students' university GPA. Because these students spend more time working to offset the cost of living, leading to poor academic performance. Therefore, the policies that both the government and the universities should focus on are providing financial support as well as gradually limiting working hours to help them improve their performance. In the context of expanding university autonomy and state budget constraint, besides re-considering the support policy for poor students, the government should

require universities to provide more financial supports including scholarships and scholarship loans to rural students while increasing tuition fees. For the universities, they should aware of the responsibility to bring about equality to access higher education for poor students to have stronger financial autonomy as well as opportunities for attracting talented students from a rural area and whose parents are farmers by providing more financial support or support services. Those will help students from rural areas achieve better learning outcomes and casually better future.

There have been many effective policies to support ethnic minorities. Our results do not find the differences in college GPA between ethnic minorities and the Kinh group. Similar to the results of previous studies in the world, our study also shows that high school achievements have a positive effect on university GPA and we find the same evidence with national university entrance exam scores. We think that Vietnam, as well as China, and South Korea should still maintain the national university entrance exam in the whole country since it helps to create more transparency in university recruitment and it is important to create fairness for rural students. The results also imply that the priority policy for international and national prize winners in enrolling into universities is appropriate. According to the authors, MOET might think of exempting them from the national university entrance exam because the results show that they have strong performance compared to the rest. Moreover, the university might consider other indicators for high school achievements besides international and national prizes which are assessed transparently to bring in admission criteria.

In the process of international integration, students who are good at English will acquire new knowledge and update themselves better, leading to better performance than those who are bad at English. The government should remain the National Project on improving foreign languages national wide and the university might consider English capability as one of the admission criteria. We propose to have policies requiring English outcomes for all graduate students.

This paper proposed the predictors of student performance including both family background and admission criteria, which should be considered when establishing support and admission policy in higher education. The results are appropriate with the previous studies and bring full evidence from Vietnamese universities. For further studies, the data should be expanded to other universities in Vietnam to avoid the bias in university's population as mentioned above relating to genders. In addition, more indicator proxy for family background and admission criteria might be considered in proposing higher education recruitment as well as support policies

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18th SEAAIR Conference 2018 "Best Paper" Award

Development of Education Informatics in Korea

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ABSTRACT

Informatics changes data and information into knowledge that people apply to many aspects of daily life and was recognized as one of the ten emerging trends in the 2012 World Economic Forum (Davos Forum). Currently, informatics is mainly adopted in health and information science areas, and applications of informatics in education are limited. However, education informatics in terms of the use of information science and technology to support teaching and learning could lead to tremendous changes in the educational landscape in the future. This study intends to explore the possibility of education informatics in higher education by introducing a case study of Sungkyunkwan University in Korea. In 2015, a research team initiated a multi-year project, Cultivating Creative Talents through Educational Informatics, which is sponsored by the National Research Foundation of Korea. The project aims to cultivate global talents in education informatics who are talented professionals with specialized competencies such as the ability to analyze big data, to apply computing and information systems, and to utilize education technology. For the last two years, several courses including Teaching Methods Using Technology and Application of Computer Technology for graduate students, and Education Informatics, Big-data Analysis and Future Forecast, Emotional Intelligence and Informatics, and Data-driven Policy Analyses for undergraduate students have been developed and operated. In addition, Education Informatics shows additional possibilities including its connection to institutional research, enhancing campus-based student engagement, and improving students' competencies and learning outcomes.

Keywords: Informatics, Education informatics, Higher education, Korea

Introduction

Informatics changes data and information into knowledge that people apply to many aspects of daily life and was recognized as one of the ten emerging trends in the 2012 World Economic Forum (Davos Forum). Currently, informatics is mainly adopted in health and information science areas, and applications of informatics in education are limited. However, education informatics in terms of the use of information science and technology to support teaching and learning could lead to tremendous changes in the educational landscape in the future.

Many scholars and practitioners (i.e. Ford, 2004; Collins and Weiner, 2010) have been exploring the possibility of understanding 'education informatics' or 'educational informatics' as a discipline. Nevertheless, discussion about education informatics is rare in general and studies in education informatics are very limited. If informatics is the future and one of the keys to solve the future challenges, education informatics also can be the future of education, in both educational research and practice. This study intends to explore the possibility of education informatics as a sub-discipline in higher education by introducing a case study of Sungkyunkwan University in Korea.

Education Informatics as an emerging field of study

Definition of Education Informatics

Informatics first emerged in the field of medicine in the mid-twentieth century (Collen, 1994), and began to be adopted by other disciplines including nursing, public health, bioinformatics, environmental informatics, behavioral health, organizations, community informatics, social work, and social informatics (Collins & Weiner, 2010). Because the term *informatics* is used in a wide range of academic disciplines, the definitions of informatics vary across subject areas. For instance, informatics is commonly used to refer to topics related to the representation, processing, and communication of information within computational systems in computer science, and in information science, informatics is always concerned with the semantics of digital information use and communication and with digital interactions between multiple information sources (Levy et al., 2003). When applied to nursing, informatics integrates nursing science, computer science, and information science to manage and communicate data, information, and knowledge in nursing practice (Collins & Weiner, 2010).

In general, however, informatics commonly incorporates multiple disciplines and is, therefore, more broadly defined. For example, informatics is an interdisciplinary science employing information on science, information technology, and statistics (Wan, 2006), and informatics develop new uses for information technology to solve specific problems in diverse areas (Indiana University, 2018). Other aspects of informatics include understanding and promoting the

effective organization, analysis, management, and use of information; a reliance on knowledge-based or evidence-based decision-making; and the integration of data, information, and knowledge (Collins & Weiner, 2010). In addition, Hersh (2009) distinguishes informatics from information science and computer science, which is its root in a domain. He also emphasizes more about information than technology although technology is an important tool to make the best use of information.

The concept of informatics has also been applied to the discipline of education. Stewart (2000: 4) defined education informatics as "the collection, classification, storage, retrieval, and dissemination of recorded knowledge treated both as a pure and as an applied science" (as cited Collins & Weiner, 2010). Other definitions of education informatics include "the study of the application of digital technologies and techniques to the use and communication of information in learning and education" (Levy et al., 2003) and "the study of the development and application of digital technologies concerning the analysis, storage, manipulation, retrieval and use of information selected from multiple independent information sources, concerning learning" (Ford, 2004). In particular, Levy et al. (2003) insisted that "educational informatics is located at the intersection of three broad disciplines: information science, education, and computer science. Each of these encompasses a range of sub-disciplines and domains, including information systems, information management, information literacy, educational psychology, learning technology, computer-supported collaborative learning and instructional design (p. 299)".

Meanwhile, Collins and Weiner (2010) approached education informatics with different perspectives from previous studies. They argued that previously defined concepts of educational informatics mainly emphasized the *technology* part, and insisted that education informatics should focus on *users* of that knowledge and the information problems they experience. They believed that education informatics would "incorporate new technologies and learning strategies to enhance the capture, organization, and utilization of information within the field of education (Collins & Weiner, 2010, p.2)". By focusing on the user, they argued that "information problems can readily be identified and this will result in practical solutions and, therefore, provide incentives for the *adoption* of the solutions (p.7)".

Current fact/trends of Education Informatics

Many universities and colleges currently provide degree and certificate programs in informatics at undergraduate and/or graduate levels. For instance, Indiana University School of Informatics and Computing provides not only Bachelor of Science Degrees in three areas, Biomedical Informatics, Health Information Management, and Informatics, but also graduate degrees including master's, Ph.D. minors, certificates, and Ph.D. program in informatics (Indiana University, 2018). According to Ko (2016), the University of California-Irvine has the School of Information and Computer Science, which consists of three departments, the Department of

Informatics, the Department of Computer Science, and the Department of Statistics. University of Michigan - Ann Arbor and the University of Albany-SUNY also have a Department of Informatics: interdisciplinary. In the UK, the University of Sussex (Department of Informatics in School of Engineering and Informatics), the University of Edinburgh (School of Informatics), and the City University of London (School of Informatics) also provide degree programs in informatics.

As previously reviewed, education informatics has emerged as a new discipline. However, only a few universities provide degree programs in education informatics. One of the programs is the Education Informatics program offered by the University at Buffalo (UB), State University of New York. The Graduate School of Education provides Master of Education (Ed.M.) in Education Studies: Focus on Education Informatics. The Education Informatics program is designed for students who are interested in studying how information can be used to inform our knowledge of learning and education and prepares students to organize, analyze, and disseminate information to facilitate educational and organizational objectives. In this program, students will develop the understanding and skills necessary to become leaders in applying the information to address the needs of both formal and informal learners and learn the pedagogy of information use and how to improve people's use of information (State University of New York-Buffalo, 2017).

In addition, there are a couple of academic journals focusing on educational informatics, including *Informatics in Education* by the Lithuanian Academy of Sciences and *the Journal of Informatics Education and Research* by the International Academy for Information Management. Yet, those journals are more focused on educational technology, rather than a broader scope of education informatics.

Education Informatics: A case study of SKKU

Project background

Two major projects have contributed to the establishment and implementation of the education informatics initiative at Sungkyunkwan University (SKKU). One is the CK project and the other is the BK21 Plus project, both multi-year government-sponsored projects. We will provide the policy background first and then describe each project with a focus on how SKKU has implemented education informatics based on those projects.

University for Creative Korea Project (CK project): The CK project aims to lay the groundwork for university characterization, therefore universities are encouraged to focus mainly on developing their areas of academic strength considering the demands and features of the community. Accordingly, the project induced radical reform in universities. The CK project was

initiated in 2014 with over 1.2 trillion Korean won (KW) in overall investment over five years. In the first year, it supported 203.1 billion KW to local universities (CK-I) and 54.6 billion KW to universities in the capital region (CK-II).

After a rigorous evaluation process, 6 research teams at SKKU were selected and "Convergence-based Creative Informatics" was one of them. Six departments, the Department of Education, Department of Global Economics, Department of Global Business Administration, Department of Design, Department of Software, and Department of Global Biomedical Engineering at SKKU, were involved in this project.

The Creative Informatics team was aware of the advent of the age of Big Data and the importance of Informatics. Massive amounts of data and information are accumulated in the form of Big Data in all sectors of society, and handling and utilizing such exponentially growing amounts of information is becoming a major social challenge. The team believes that Informatics is the key to solving problems related to Big Data in each social sector by use of software technology.

We define Informatics as a field of study involving multidisciplinary convergence in efforts to develop new knowledge and value from meanings discovered or created in Big Data produced from the convergence of multiple organically connected domains. Thus, Creative Informatics is a study that targets the discovery and solving of problems through the convergence of domain knowledge and software technology in systematic processes, and the creation of new knowledge and value. It consists of Creativity (Ability to Generate and Solve Creative Problems) and Informatics (Domain Knowledge + SW Utilization Skills).

The goals are to create a convergence-based knowledge ecosystem and to build an open platform for convergence education. The first goal is to build an open convergence education platform where, as a solution to the problems of subject-centered major immersion education, single or multiple departments join in collective engagements for common educational goals and the vision of fostering talent. The second goal is to build an "Ecosystem and Learning Center where each knowledge community, on and off-campus, can engage in the production and consumption of knowledge," an agent or powerhouse of knowledge where student-professor interactions are facilitated and all walls between departments are removed. To accomplish these goals, four strategies are set to embody the goal of building up a Student-Centered Convergence Education Platform to foster talent in Creative Informatics: (1) Student-Centered Specialized Educational Curriculum, (2) Advanced Teaching/Learning Methodology, (3) Specialized Educational Support Infrastructure, (4) Shared Values Creation and Social Contributions.

Brain Korea 21 Plus (BK21+ project): The Brain Korea 21(BK 21) project is a national human resources development project initiated to produce creative master and doctoral-level human

resources and to promote the creation of new knowledge and technology based on creativity. It was launched in 1999 as the largest government-initiated project in the education sector in terms of its budget. The Korean government invested 1,306 billion KW during the first phase of the BK 21 project (1999–2005) and invested a total of 1,847 billion KW during the second phase (2006–2012). Started from 2013 the third phase of the BK 21 project (2013-2020) was renamed BK 21 PLUS, and the government plans to invest about 1.9 trillion KW.

In 2015, a research team, *Cultivating Creative Talents through Educational Informatics*, at SKKU was selected as one of the five research teams in the field of education. The project aims to cultivate global talents in education informatics who are talented professionals with specialized competencies such as the ability to analyze big data, to apply computing and information systems, and to utilize education technology. Four professors majoring in higher education, educational administration, counseling psychology, and educational technology in the Department of Education lead the research team with over 30 graduate students.

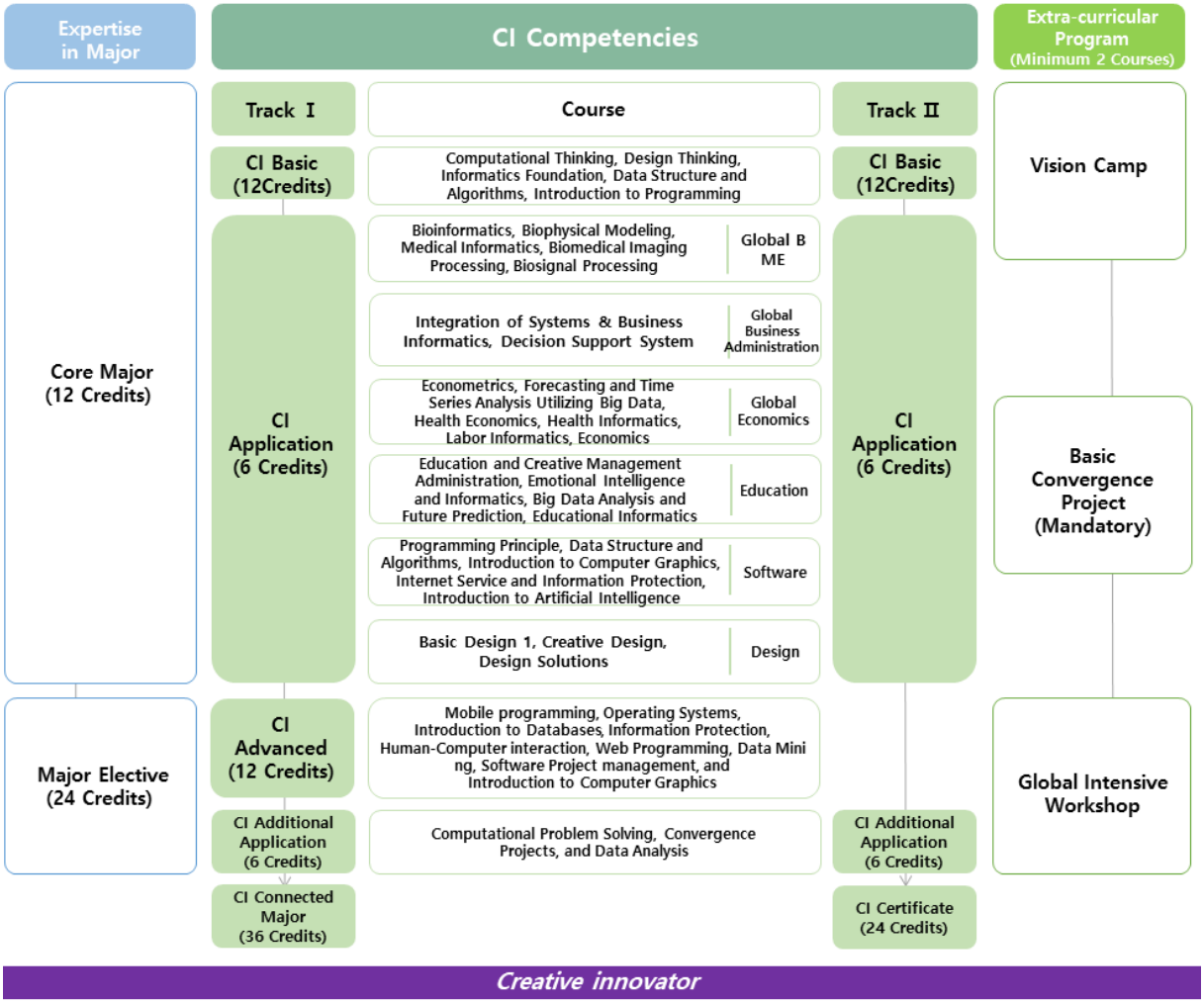
Implementing Education Informatics program

The C School: The C-School was established to implement the *Convergence-based Creative Informatics* project. Six departments including Global Business Administration, Global Economics, Global BME, Education, Software, and Design participated in the C-School. The C-School offers a systematic curriculum to educate students to become creative innovators. C-School's educational system consists of convergence courses bringing together Expertise of Major, CI Competencies, and Extra-curricular Experiences. There are two tracks and students can choose either CI Track I or II.

The core major courses consist of CI basic courses and CI applied for courses. CI basic courses are comprised of Computational Thinking, Design Thinking, Informatics Basics, Data Analysis, and Programming Basics. CI applied courses are offered by each participating department. The courses are cross-listed so students from other departments can earn credits from those courses. Figure 1 presents the roadmap of the C-School. To obtain a degree in Informatics, students should complete 12 credit hours in basic or core courses and 24 credit hours in applied courses.

The C-School also offers various extra-curricular courses including Vision Camp, the Basic Convergence Project, and Global Intensive Workshops. Vision Camp aims to help students improve their informatics abilities over a short period with the help of lectures by invited field professionals on advanced knowledge and technology in informatics. The Basic Convergence Project, a mandatory course for C-School Certificate and Interdisciplinary Program majors, is designed to cultivate problem-solving skills for working in multi-disciplinary, multi-level convergence teams, exploring global issues, and solving problems in local communities. Global Intensive Workshops offer opportunities for visits to major industries in global markets related to

new growth engines and potential industries and help in developing global perspectives through meetings with young entrepreneurs in local communities.



[Figure 1] Roadmap of the C-School

Source: Sungkyunkwan University (2018).

Courses in Education Informatics: In the Department of Education, for the last four years, several courses including Teaching Methods Using Technology and Application of Computer Technology for graduate students, and Education Informatics, Big-data Analysis and Future Forecast, Emotional Intelligence and Informatics, and Data-driven Policy Analyses for undergraduate students have been developed and operated.

Among the courses, Education Informatics was offered to undergraduate students in 2015 and 2018. As an introductory course, the objectives of the Education Informatics course in 2015 were to understand the impact of information and digital devices on humans based on the understanding of education and informatics and to explore how to utilize and apply education informatics in the field of education. This course consisted of two main parts: education and

information and institutional research. The first part, education, and information included an overview of education and informatics, searching for the true meaning of education and valuable information, and understanding education informatics. The second part, institutional research, included institutional/organizational intelligence, the creation of data and information in higher education institutions, the flow of information in a university, and a series of practices for using data and information in real-life settings. The Education Informatics course in 2018 was improved in terms of utilizing more data and information in higher education. That is, the 2018 course introduced not only technical skills using SAS and SQL in Education Informatics but also practical hands-on training such as big data analysis and classroom utilization analysis. One of the important contributions of these courses is to connect education informatics to institutional research. If "the philosophical foundation of informatics is the commitment to knowledge-based or evidence-based decision-making (Wan, 2006, p.3)", institutional research (IR) has to be linked with education informatics research because providing valuable data and information for the decision-making process and data management (generating, managing, and disseminating data to internal and external constituencies) and data analysis (providing valuable information) is considered to be the basic and essential function of IR (Ko, 2018).

Research on Education Informatics: As previously described, the aim of the *Cultivating Creative Talents through Educational Informatics* project is to cultivate global talents in education informatics who are talented professionals with specialized competencies such as the ability to analyze big data, to apply computing and information system, and to utilize education technology. In this project, we place a special emphasis on graduate-level students. Although certain courses are not provided for the graduate students, participating professors, together with graduate students, conduct studies related to education informatics. For instance, professor Ko not only offered a course, Education Informatics, for undergraduate students but also presented a paper entitled "Understanding Education Informatics". In addition, he and one of his students presented their paper, "A research on the possibility of educational informatics: Focusing on the analysis of the classroom utilization", at the 2016 Korean Education Research Association (KERA) Annual Conference (Kim & Ko, 2016). This study used classroom utilization analysis as a case study of applying informatics to education. Analysis of classroom utilization is a systematic analysis of how many hours a week a classroom within a campus is utilized by several students. The results of the analysis can provide useful information for making institutional decisions and planning for classroom use and facility expansion. This study finds a clear connection between education informatics and institutional research.

Issues and Challenges

Although the projects have been well recognized so far, some challenges still lie ahead. One of the biggest challenges is a low participation rate in the project. Several incentives such as a chance to take domestic and international field trips were provided to participating students, yet

not many students from the Department of Education were enrolled in the project. This is understandable from students' perspective considering that education informatics is a new area and therefore the career path after graduation is not clear. However, all educational programs in the university should meet a required minimum number of students set by the school, and a low student participation rate, which occurs continuously, may result in the closure of the Education Informatics course. The upcoming termination of the two projects which have been providing financial resources and administrative support is another major challenge. The CK project will be terminated in early 2019 and only a few programs will continue to operate after the end of the project. The BK21+ project will be completed in summer 2020. Lack of funding for education informatics programs after the end of the two projects will be an issue. The university has to decide whether or not to maintain the education informatics programs, and to maintain the programs, the university must secure sufficient financial resources. The last challenge is a lack of technology skills among students. Most students in the Department of Education do not have in-depth computer and technology skills, which are important tools to utilize information effectively. Students are more oriented toward humanities and social sciences, and most programs at the Department of Education aim to cultivate secondary school teachers. Hence students in the Department of Education possess relatively weak academic knowledge in software, computer, and technology. Without proper knowledge and skills, students will have a hard time completing the education informatics programs.

Nevertheless, there are possibilities for further growth of the education informatics programs. Several courses on information sciences and technology have been added to degree programs and participating professors and students are keen to teach and learn more about education informatics. The most significant point is that Sungkyunkwan University plans to establish a new college, School of Convergence, which will run all programs using the university's budget, instead of relying on external funds like the CK project and BK21+ project. The School of Convergence will include all convergence programs such as Informatics, Data Science, and Self-designed Transdisciplinary Studies. Education Informatics could be included in the Informatics program, and in this case, the university is expected to broaden the scope of the targeted student groups.

In particular, this study provides new possibilities to link Education Informatics with Institutional Research. Even though Education Informatics may not be a part of a new college program, it can establish its area when linking to institutional research. Higher education institutions should utilize data and information for university decision-making and strategic planning. For instance, Education Informatics can contribute to analyzing student retention and graduation rates, classroom utilization to examine how the university uses all classrooms and labs efficiently, the hourly population on campus to check the busiest hour during a day for campus management, enhancing campus-based student engagement, and improving students' competencies and learning outcomes.

Conclusions

The purpose of this study was to explore the possibility of education informatics in higher education by introducing a case study of Sungkyunkwan University in Korea. Two multi-year government projects at the Department of Education have initiated education informatics programs for the past four years. Five informatics-related courses were developed and in particular, an Education Informatics course is intended to understand the impacts of education information and to explore how to utilize informatics in the field of education. This course not only delivered knowledge about education informatics but also provided technical skills and practical hands-on training. Education Informatics at SKKU as the first undergraduate course in this field could serve as a basic and essential guideline for the further development of education informatics programs in other countries.

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18th SEAAIR Conference 2018 "Outstanding Paper" Award

Sustaining Competencies and Employability: A Fishbone Model for Engineering Education to Fit the Processes of Life

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ABSTRACT

Just as breakthroughs in the physical sciences fueled the industrial revolution, we are now in the early stages of a social revolution fueled by breakthroughs in the human sciences. This paper builds on a paper presented at SEAAIR 2017 that discussed new understandings from the Science of Learning. The current paper combines emergent knowledge from neurobiology with social and cultural timelines to propose a nuanced and situated "*fishbone*" model of human life processes. From conception to terminal illness, the changes in different parts of the brain are not uniform. Different parts of the brain perform different functions that, when scaffolded, deliver higher-level skills. For example, understanding tonal languages require a strong sense of differences in pitch, a skill most easily developed in early childhood. The paper then explores the implications of this model for delivering sustaining competencies and employability to our citizens. Furthermore, education is currently designed as a *push method* – education is largely pushed out in early life, to meet the demands of a whole lifetime. The paper proposes that to be sustained, the education industry needs to be re-engineered to a *pull approach*. Advances in the Science of Learning allow young citizens to be effectively taught to be independent learners. Independent learners can pull in (to learn independently) the knowledge and skills *Just In Time (JIT)* to be relevant to their life stage. ASEAN @ 50, led by its higher education sector, can deliver sustaining competencies and employability to its citizens.

Keywords: Competencies, Employability, Science of Learning, Sensitive periods, Independent learning

Introduction

The technological marvels all around us that we now take for granted can be traced to industrial revolutions that were sparked by paradigmatic advances in the physical sciences (Kuhn, 1962, 1970). We are now seeing similar paradigmatic advances in the human sciences that are capable of social revolutions. In last year's SEAAIR conference, the principal author presented a paper that proposed that the Science of Learning has matured to a point that everyone can be taught to be independent learners (Somasundaram, 2017). That paper described specific crucial discoveries from the Science of Learning and discussed their implications for higher education. A subsequently invited paper for the *ASEAN Journal of Education* further developed the theme of both the discoveries from the Science of Learning and the implications for early, school, and higher education (Somasundaram, in press). The discoveries presented in the above papers are briefly described in the next section, "Background".

The theme for this conference is "Sustaining Student Competencies and Employability". The theme requires us to plan and propose the future. To be sustaining, policies need to be both efficient (at least cost, and ideally using renewable resources) and effective (provide the necessary skills and competencies for successful wellbeing). The third section, "Methodology", discusses the nature of this inquiry: the types of scholarships that the paper engages. The section also describes two techniques from engineering supply chain management, "*Push/Pull*" and "*Just in Time"*, which when coupled with a citizenry of independent learners can deliver sustainable education.

The fourth section, "Stages of Life model", develops a model for the delivery of education. It draws from and integrates two different sources: firstly, our understanding of neurobiological changes during life; and secondly, the competencies needed for well-being at different stages of life.

As this conference is for members from universities, the fifth section briefly discusses the implications for universities. The final, sixth section "Conclusions' summarises the opportunities suggested by this paper for the ASEAN community @ its fiftieth anniversary.

Background

A paper (Somasundaram, 2017) at last year's SEAAIR conference and a subsequently invited paper (Somasundaram, in press) for the *ASEAN Journal of Education* explored and developed five core concepts from the Science of Learning that, taken together, provide the basis for creating a curriculum for teaching students to be independent learners. Once all students become independent learners, then the role of subsequent educators changes dramatically: they can devote far less time to teaching, and more resources become available for other functions such as instructional design and research. The five concepts are briefly summarised below. However, readers should refer to the original articles for a more detailed, nuanced understanding and references and further sources.

Neuroplasticity, cognitive load theory, chunking, and sleep memory formation are four critical discoveries that, blended, describe how learning takes place.

Neuroplasticity refers to the way that learning occurs. The ends of nerve cells (synapses) grow when messages are repeatedly transmitted along with them (and prune when there are fewer messages). Learning is a physical strengthening of some neural pathways over others. Cognitive load theory describes the limited ability of the part of the mind involved in concentrated thinking to hold many different bits of information simultaneously. We cannot understand something when it consists of too many different bits of information. On the other hand, when we repeatedly connect different bits of information, then the mind chunks them into one larger bit of information. Once bits of information is chunked, then they can fit into working memory. We can handle complex information in working memory when the many bits have been chunked into a few larger bits. For example, small children, when learning to read, need to focus on every letter and how it forms a word. But over time they can grasp the whole word instantly, and therefore can easily understand sentences[2].

The importance of sleep is only now being unraveled. Two periods appear critical. A particular type of brain activity known as spindle waves transfers what is learned during the day into deeper, long-term memory. Spindle sleep both forms long-term memory and clears up memory spaces to absorb a new day's learning. Rapid Eye movement (REM) sleep is associated with brain waves that appear random, like static noise. REM sleep strips strong negative emotions from memories, reducing anxieties. Furthermore, during REM sleep new and older memories fire together, suggesting relationships that may not have been explicitly taught.

This basic scientific understanding of how the brain functions have important practical implications. Learning occurs through repetition and recall, spaced over days so that sleep enables deep learning. Students should move onto more difficult material only after simpler material has been sufficiently chunked.

The theory of flow shows how to make learning enjoyable

Mihaly Csikszentmihalyi (2014a, 2014b) developed the theory of flow to describe the state of focused concentration, almost like a trance, that athletes and others immersed in an activity fall into. This concentration happens when the activity on which the individual is focused is neither too hard nor too easy. When the material is too hard, then the unpleasantness of error overwhelms the participant, and she or he breaks concentration. On the other hand, when the activity is always successful, then the repeated triggering of the reward circuits causes satiety, a drop in pleasure, and boredom.

Studies of experts, individuals in the sport, and other professions, who have moved beyond mere competence to world-class performance provide more nuanced insights. Their training programs,

[2] In teaching young children to read, phonics must precede whole word approaches.

called "deliberate practice", are not simply long, but also embrace some degree of unpleasantness – they deliberately pay attention to and practice elements in which they are weak.

There are two distinct modes of thinking

Thinking can be divided into two distinct categories. Focused, concentrated thinking is distinguished by strong neural activity predominantly in the front of the brain (the task-positive network). Another type of thought, which could be called "*diffused*", is characterized by a dampening in the task-positive network, and greater activity in other parts of the brain called "the default mode network". "Daydreaming", "intuition" and "subconscious thoughts" are terms associated with the diffuse mode of thinking.

While western philosophy and culture have tended to idealize focused thinking and consider diffuse thinking idle and wasteful, a more balanced perspective is more useful. While focused thinking is necessary for learning, and usually results in more accurate and reliable results, we generally use diffuse thinking most of the time. Diffuse thinking is associated with creativity and may be more effective for solving complex problems with no easy solutions. Focused thinking, by its nature, tends to block out alternatives.

Cognition is integral with sensory/motor, emotional and social operations

The human brain works in an integrated manner. We like to picture cognition sitting like a puppeteer pulling the strings on a human body, with emotional, social, and sensory-motor operations as separate, independent activities. In reality, these different operations feed into and off one another.

Our education systems have tended to privilege cognition and neglect the other operations of the brain. For example, reading requires the movement of the eye in jumps known as "saccades" and a spoken vocabulary developed by listening and speaking. Concentration and motivation require the development of emotional skills. Employers are increasingly becoming aware of the importance of emotional and social skills and critiquing education for not developing these skills in students.

Neurobiological circuitry matures in a predictable pattern of sensitive periods.

Historically, the concept of the brain as maturing linearly until adulthood, and then remaining constant, has been common. While some educators such as Piaget (1972) have, through observation, proposed several stages of development, we are starting to have a far more nuanced and sophisticated understanding of how different parts of the brain change with age. Some stages appear to be particularly important for the development of certain skills. If a child does not develop a particular skill during a sensitive period, then it is much harder to develop that skill in later life. For example, tonal languages and singing require the ability to sense pitch, a skill that is hard to learn after the age of five.

The model proposed in this paper, and described in section four, combines changes in our neurobiological circuitry with the changing roles and expectations of society during different life stages.

Methodology

Ernst Boyer, in his influential book *Scholarship, reconsidered: Priorities of the professoriate* (1990), said that academics had four scholarly tasks: (1) the scholarship of discovery; (2) the scholarship of integration; (3) the scholarship of application; and (4) the scholarship of teaching. By discovery, he meant traditional research – the discovery of new knowledge from within a single discipline. By integration, he meant the creation of new knowledge and insights by fusing knowledge from two or more disciplines, similar to the more recent terms "multidisciplinary" and "transdisciplinary" research. By application, he meant the application of fundamental science to solve real-world problems, similar to our concept of applied sciences and what in the health sector is now called "translational research". Education is an applied science. By the scholarship of teaching, he meant teaching in a scholarly manner – teaching that embraces and applies the frontiers of knowledge to the education of students.

This paper is a combination of the scholarships of integration and application. It integrates knowledge from several disciplines in the fundamental sciences? and applies it to transform education.

This paper applies the discipline of futures studies (Bell, 1997, 2003) - the discipline that seeks to forecast the future. The prediction is based on an environmental scan that identified specific discoveries and trends. The goal of futures studies is not only to forecast the future but also to influence it – to create a preferred future.

Life is a process from conception to death, with discrete stages. The individual undergoes neurobiological changes during this period and also needs specific skills and competencies to thrive at every stage. Engineering, like education, is an applied science – the application of the pure sciences for practical purposes. This paper applies knowledge from the multidisciplinary Science of Learning and draws on concepts from the engineering discipline of industrial supply chain management for the practical purpose of creating sustainable competencies and skills during the processes of human life.

From this perspective, the methodology deployed in this paper is conceptual, mobilizing selected concepts to explicate a speculative and potentially provocative argument to endorse the value of a particular model of education derived from current learnings from the scholarship of engineering. Rather than drawing on the constructs and data collection instruments associated with empirical research, the rigor of this approach depends on the perceived coherence, relevance, and utility of the model developed here to address enduringly significant, real-life

debates and issues. Moreover, this approach embraces an abductive approach to analysis, whereby:

Abduction occurs when we encounter observations that do not neatly fit existing theories and we find ourselves speculating about what the data plausibly could be a case of. Abduction thus refers to a creative inferential process aimed at producing new hypotheses and theories based on surprising research evidence. Abduction produces a new hypothesis for which we then need to gather more observations. (Tavory & Timmermans, 2014, p. 5)

Push-Pull

The term "push-pull" is derived from the engineering discipline of industrial supply chain management (Janvier-James, 2012). It helps us to understand two contrasting ways of providing goods and services applicable to supply chains when an end product requires the manufacture of goods in different stages. In push markets, suppliers maintain control, pushing goods and services onto the market. They decide quantity and quality. In pull markets, consumers seek the goods and services that they want, in both quantity and quality, which manufacturers produce. Push markets favor suppliers since they have greater control of what goods they produce and when they produce those goods. Goods can often be cheaper since they can design manufacture to achieve economies of scale. Education represents a push model, with education being delivered to students at the convenience of the education providers.

If on the other hand student can be independent learners, then they will be able to achieve a pull system, pulling in the learning of their choice rather than being dependent on the education system to supply it at the education system's convenience.

Just in time

The term "just in time (JIT)" is also derived from supply chain management, and is associated with pull systems (Sugimori, Kusunoki, Cho, & Uchikawa, 1977). As the term implies, JIT refers to goods being manufactured only just before they are needed. In manufacturing, JIT relationships require tight coordination, since miscommunication will result in a disruption of production flow. The benefits of JIT are that it reduces capital being tied up in unnecessary stock and that it minimizes obsolescence and waste. A JIT approach in education would mean that students will not have to learn things that they never use, and will not forget what they need to know, and that, in a world where scientific knowledge changes every year, what they learn will be up-to-date.

Limitations of this paper

Our conceptualization of the world is beautifully described by the Asian parable of the king who called his blind men to describe an elephant ("Udana: Exclamations", 2012). The blind man feeling the ear describes a winnowing basket, the blind man at the head a jar, and the tusk felt like a ploughshare…. It is the task of the integrationist to draw these disparate knowings and to create a model: "*All models are wrong, but some are useful*" (Box, 1979, p. 2). Science is never

complete, and in disciplines such as neuroscience, we still have much to learn about the biophysical nature of thinking and learning. It falls on the reader to judge this paper's usefulness, and whether it presents a practical way forward. Does it provide you, the reader, with insights that you can use in playing your part in improving society?

The Stages of Life model

This model is an integration of two elements: (1) neurobiological changes at different stages of life that impact learning; and (2) the demands of society and life – what a person needs to know at different stages of life[3].

Neurobiological changes

i. Foetus. While massive conditions that result in easily noticeable damage such as spinal tu be defects are well known, only recently has more subtle damage such as Attention Deficit Hyperactivity Disorder owing to maternal stress (Ronald, Pennell, & Whitehouse, 2011) been identified. This subtler damage not only disadvantages the individual child bu t can also have a significant impact on classroom management and stress levels, impactin g the learning of all peer students.

ii. Infant. The brain continues to grow rapidly after birth, and the infant starts interacting wit h the outside world. Sensory-motor networks that are the foundations of human communi cation and movement are being formed at this stage. Safety and the absence of toxic stres s continue to be critical. The infant also seeks to bond with the mother and other caregive rs, and this bonding is important as the foundation for later social and emotional intellige nce. The classic communication cycle between the infant and caregiver, where one initiat es an action – such as a smile or a noise – and the other response, sometimes called "a ser ve-and-return cycle" (Center on the Developing Child at Harvard University, 2014), is an important training tool.

    - Learning is a scaffolded activity. Timely foundational learning ensures timely conti nued development. For example, infants who are routinely massaged and permitted free movement to learn to crawl earlier. Early crawling ensures that the child has a greater ability to explore the environment and to learn novel skills. Babies learn to make speech-like sounds that proceed to words. Verbal interactions with caregivers increase vocabulary. Children with a greater spoken vocabulary when they enter sch ool learn to read faster.

iii. Toddler. The period called "the terrible twos and threes" marks a period of increasing ind ependence (ability to walk) with the development of the awareness of self and greater em otional development but still low self-control. Perhaps most concerning to parents is the emergence of lying and the ability to conceal the lie elaborately. The child's increased me

[3] The paper describes the stages in life in a typical Western society.

ntal and physical abilities make them more powerful, but they are yet to be shaped and co nstrained by cultural and social norms (Evans & Lee, 2013).

iv. Puberty. The release of pubertal hormones begins another period of high neuroplasticity. Changing hormone levels amplify emotions to which the teenager is not used accustomed . Importantly, the maturation of different parts of the brain is not uniform, with regions i mportant for executive control maturing later, and teenagers are less able to evaluate risks and exercise control.

v. Adult. Neural development reaches a peak and then starts to deteriorate slowly. Like the physical body, the rate of mental deterioration depends on a variety of factors, including (mental) exercise. The deterioration is initially very slow and not noticeable. Furthermore, while the speed of thinking and learning may be slower, this is more than compensated fo r by the increase in knowledge and skills that occur. It is therefore crucial that adults do n ot stop learning.

vi. Childbirth. The hormones triggered by pregnancy cause changes to brain areas responsibl e for social and emotional skills. These changes are evolutionary tactics to improve mater nal bonding and childcare skills (Hoekzema et al., 2017); complementary changes in men have not been detected.

vii. Multi-system failure. The human mind is a complex, evolved system. Evolved systems sh ow a characteristic called "graceful degradation": unlike many machines, in which the fai lure of a single bolt may cause the machine to stop working, evolved systems tend to hav e sub-systems that compensate, such as nerve damage in one ear being compensated for b y the other ear or by an increasing ability to lip-read. However, with aging, other systems that compensate may find the load too much and themselves fail more rapidly. While hist orically such periods before death have been quite short, modern medicine has extended t his period. The individual becomes more and more dependent on others for daily tasks.

viii. Daily and seasonal rhythms. We also have a daily rhythm that is often poorly exploited. As was discussed in section 2.1, sleep plays an important part in learning. Sleep needs ch ange during different life stages. Furthermore, individuals have different sleep patterns, falling into three roughly equal groups. Larks are early morning risers, owls prefer a later sleep cycle and 'in-betweeners' fall into the middle. When individuals are awake, alertnes s rises to a peak after awakening then drops (with an afternoon siesta in some cultures), th en rises again before tapering down for the sleep cycle.

While many religions incorporate a lunar cycle, evidence for human neurobiological changes is weak. There is some evidence for an annual cycle (such as the seasonal affective disorder), perhaps more pronounced when living in areas affected by daylight differences.

Understanding these patterns is valuable for both education and societal design. For example, with puberty, teenagers' body clocks shift backward, turning them into owls. This means that

morning learning is less efficacious. Furthermore, forcing them to wake up before they have had sufficient spindle and REM sleep to digest the previous day's learning is not productive. Studies in the United States have shown that delaying school start times for teenagers has a significant effect on road crashes for this cohort (in one study, the reduction was 70%) (Walker, 2017).

Social, cultural, and job transitions

i. Early childhood. Infants and young children are voracious independent learners. They lear n to walk and talk, extremely complex skills, with focus and determination, virtually by th emselves. At birth, they are dependent on their caregivers for the essentials of life. Exte nded families, social groups, and pre-school extend the child's experience and gradually a cclimatize the child to the outside world and prepare her or him for school.

ii. Primary school. The primary school typically represents a major environmental change. W hile some children are ready and thrive with the move, for others it is stressful and unpleas ant. The change is made based on societal rules, with less regard to the individual child's l evels of maturation in sensory-motor, cognitive, emotional, and social skills.

iii. Secondary school. The secondary school represents another important transition. Again, if children are not ready for the transition, they will not thrive.

iv. Pair bonding and marriage. With puberty comes increasing interest in mating activities. If good emotional and social skills have not been established by this age, then individuals are more likely to accede to escalating inappropriate behavior leading to domestic abuse. Dom estic abuse is often intergenerational, and education about what constitutes acceptable beh avior and how to maintain safety before pair bonding commences is optimal.

v. Post-secondary education. The transition from school to trade and university education rep resents another major shift, requiring different competencies. Often students will also leav e home at this point. They face greater freedoms as well as responsibilities.

vi. First job. The transition to the initial workplace requires individuals to develop job-specifi c technical and social skills. Even issues such as neatness and punctuality may need to be i mproved. Students transitioning to the workplace also suddenly have significantly greater income, and sound money-management and savings skills need to be established.

vii. Parenthood. The birth of children creates significant stresses as well as the need for critical parenting skills. State interventions during this period, to ensure adequate skills and suppo rt, may be necessary to break cycles of intergenerational disadvantage.

viii. Job changes. The days when an individual started a post-schooling job and held the same j ob till retirement, are long over. Transitions between jobs are now a fact of life. Furthermore, as vocations radically change or disappear, transitions are often between jobs that require very different skill-sets. Furthermore, where the transition is involuntary, the i ndividual may need motivational skills to make a successful transition. Two important poi

nts regarding (workplace) transitions made by Bridges (2009) are :(1) The change in envir onment is typically rapid, while the learning of the skills necessary for the new environme nt takes time; (2) Individuals may often have negative emotions about change, and they ty pically need to go through several stages to achieve the strong positive motivation that rea dies them to thrive in the new environment.

ix. Retirement. Work fills up a person's time and is often an important if not a primary activit y that provides purpose and meaning in a person's life. Retirement can therefore create a major vacuum that, unless transitioned successfully, can lead to depression and decline.

x. Spousal death. Spousal relationships represent by far the most important social bond. Not only is the breaking of the bond traumatic, but also the individual may not have the skills or inclination to create other bonds to support themselves. Spousal skills often complemen t each other, and the loss of a spouse often creates a loss of life skills, such as cooking or fi nancial management.

xi. Assisted living/nursing home. As individuals age, they lose both the physical and the ment al skills to function independently. This assistance may be provided by either trained profe ssionals or family members, and skills are required, by both the individual and the person assisting, to ensure that the transition is smooth.

xii. Most religions posit an after-life, and much of religious education is geared towards that tr ansition. However, this is beyond the scope of this paper.

A Fishbone Model

An integration of neurobiological changes at different stages of life that impact learning, the demands of society, and life – what a person needs to know at different stages of life – is shown in Figure 1 below.

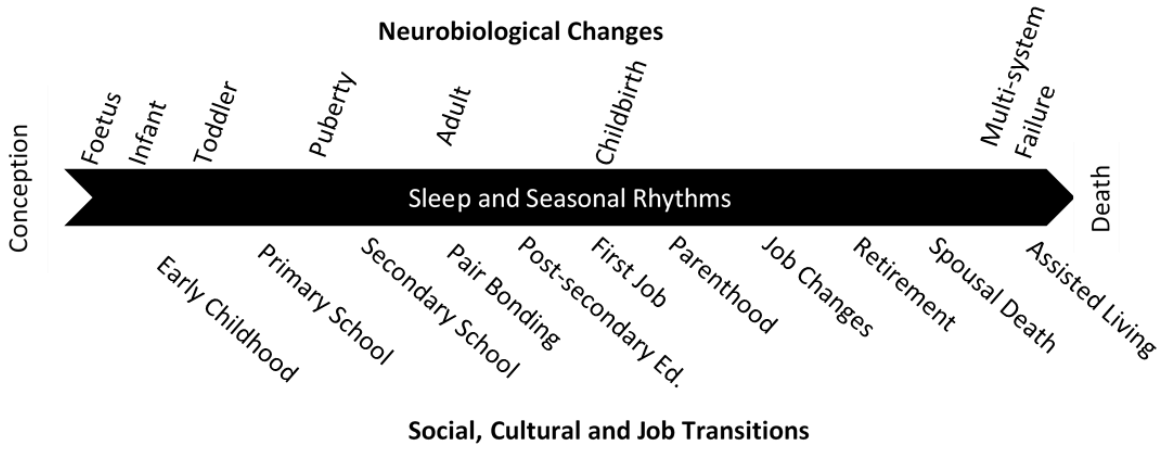

Figure 1: Integration of neurobiological changes with social, cultural, and job transitions

Implications for universities

Universities have three roles to play in this transformation:

Change Agent

Universities have both the responsibility and the opportunity to lead the revolution that the human sciences are delivering. Not only is much of the new science being uncovered by universities, but universities are also a crucible of the different disciplines and can develop integrated solutions. But, to do this, universities need to be better at breaking out of the silos that academic departments form, and to develop the skills of applying the science to the real world.

A central requirement of this model is that all citizens (school leavers) are competent, independent learners. Changing the school curriculum to ensure that all students become independent learners is an activity that universities can greatly influence.

Delivering Education to the New Model

The model presented in this paper disrupts current structures in two major ways. Firstly, the public services of health, education, and welfare are structured as independent arms of government. This model proposes a more integrated model in several respects, with certain (but not all) elements of the services needing to be delivered in a far more integrated fashion. Secondly, education is broadly delivered in two ways: schooling and post-schooling. This model proposes a far broader scope and responsibility for education: from conception to death.

Further Research

The industrial revolutions, which commenced over two centuries ago, are continuing, and arguably even accelerating as the progress of the physical sciences. There is still much to unravel in the human sciences, and the private sector, while often leading in their application, is unlikely to invest in the rigorous methods that science demands. It, therefore, falls largely on public sector and university researchers to advance the human sciences.

Implications for Higher Education

The argument being propounded here has three important implications for contemporary higher education institutions. Firstly, the university's public service mission of contributing substantially and sustainably to the common good (Nixon, 2012) can be harnessed and strengthened by embracing wholeheartedly the ideas outlined here by ensuring that curriculum, teaching, and assessment policies and practices are aligned directly with a focus on facilitating the growth of independent, lifelong learners with multiple and malleable competencies for all aspects of the current world. Secondly, the research agenda of universities can be extended and enriched by a more explicit consideration of Boyer's (1990) four scholarships articulated above, and in particular of how universities can foster increased linkages among these scholarships. Thirdly, these requirements for greater alignment and increased linkages reinforce the need for universities to be outward-facing concerning their diverse constituencies and their varied

stakeholders, thereby highlighting their broader social and community responsibilities (Zhang, Liu, & Zhang, 2018).

Conclusion

The theme of this conference – "*ASEAN@50: Sustaining student competencies and employability"* - demands that we as scholars gather ourselves, our knowledge, and our competencies to forecast and shape our preferred futures.

This paper proposes one such potential future of an educated society: one where every citizen is taught the science of becoming an independent learner, and where higher education institutions design neurobiologically appropriate courses to meet the cultural and work-related needs of the individual. These courses can be delivered cheaply/sustainably through methods such as Massive Open Online Courses (MOOCS). Individuals can then *pull* the necessary learning *just in time*, thereby providing economic and sustainable competencies for a post-50 ASEAN citizenry.

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Personal Finance Practices of Millennial Students: An Exploratory Model

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ABSTRACT

This study aimed to establish a model that explains the personal financial practices of millennial students. Descriptive research design and exploratory method were used to examine the variables behind the personal financial practices of 641 millennial students enrolled in Higher Education Institutions in Northern Mindanao, Philippines. Three adapted and content validated survey questionnaires were tested for internal consistency on the following: Financial Literacy indicated by financial knowledge, financial attitude, and financial behavior; financial socialization agents such as parents, peers, school, and media; and the Personal Finance Practices. Multiple linear regression was used to treat the data and Structural Equation Modeling (SEM) was utilized to generate the model. Given the developed model personal finance practices of millennial students can be explained through their financial literacy and socialization agents. Recommendations to the academic sector were presented to enrich the curriculum on personal finance and for the institutions to reach out to parents for education considering them as significant providers of personal financial information to their children.

Keywords: Personal Finance Practices, Financial Literacy, Financial Socialization Agents, Exploratory Model.

Introduction

In today's financially challenged economy, billions of people are becoming unprepared to deal with the rapid changes in the financial landscape (Klapper, Lusardi, & Oudheusden, 2015). The quest for sound financial health requires the skills necessary to efficiently and effectively manage money. As the younger generation opted to study in tertiary education which requires higher financial needs, they carry and make severe economic dilemmas. The experiences of this generation in making a complex personal financial decision are considered as critically important to increase their financial literacy and to uplift them to a positive path towards financial security.

In the aftermath of the global financial crisis in 2008, financial literacy as a critical life skill for individuals has gained further international recognition (OECD INFE, 2012). In 2014, the S&P Global Financial Literacy Survey conducted showed that regardless of the country's economic status, the financial literacy of the general population of countries has become alarmingly low (Lusardi & Klapper, 2015). The 2015 World Bank's Global Financial Literacy Survey also revealed that for every three (3) adults around the world, one (1) is financially illiterate. In the same survey, the Philippines ranked 112 among 143 countries surveyed resulting in a 25% literate adult Filipinos than the average 31% showing an understanding of basic financial concepts (Montecillo, 2015).

The Philippine statistics showed that one-third of its population is millennials or ages between 15 to 35 years old. Tetangco (2015) highlighted the importance of financial literacy for the Millennials as they are and will be moving to be key decision-makers in business and industry. A study conducted among undergraduate students to different colleges and universities across the United States revealed that the majority of college students experienced stress about their finances that suggested poor financial practices (Grabmier, 2015).

The facts indicated serious implications of dwelling less comfortable financial conditions in life resulting in mismanagement of finances. This study was directed at establishing determinants that explain personal finance practices among students in Higher Education Institutions. Finding the best fit exploratory model for millennial student's finance practices can contribute to the dearth of studies about millennial personal finance practices that may inform institutional decisions on policies that would enrich the college preparation of students on finances especially on personal finance practices.

Research Framework

Personal Finance Practices as the art of handling money involves all financial decisions and activities to manage well an individual's financial resources. These include financial practices on budgeting, savings, spending, borrowing, and repayment; financial literacy domains on knowledge, attitude, and behavior; and financial socialization from parents, peers, school, and media.

This study found substantial theoretical and conceptual support from the following theories namely: Life Cycle Theory of Modigliani and Brumberg (1954), the 1997 Jumpstart Coalition's concept on Financial Literacy, Mead's Theory of the Social Self (1934), and Albert Bandura's Social Learning Theory (1977), Danes Model on Financial Socialization (1994), and Deacon-Firebaugh Input-output Family Resource Management Model (1988). These theories and models provided substantial theoretical grounding for this study.

Personal Finance Practices. Individuals go through a financial life cycle just as in the natural life cycle (Gitman & Joehnk, 2008). These authors explained the financial life cycle as they relate to the different life stages that an individual passes from one stage of maturation to the next and the patterns of managing income, budgets, assets, credit, insurance, retirement, homeownership, and investment also change. Stages of financial planning life cycle include from early childhood, when an individual relied on their parents for support, to early adulthood, when hired for the first jobs and when one starts a family there will be noticeable changes in the individual's financial decision (Gitman & Joehnk, 2008).

The theory suggests that in an individual's life cycle there is an intention to plan for future finances through wealth accumulation when earning and spend rabidly when retired but keeping consumption level in control to even out financial concerns in the best conceivable way (Hodges, 2013). Thus, in personal finance, managing financial resources of what is available to an individual and his family become a major concern; to improve their equity to be able to attain, maintain and sustain financial and personal independence and consequently to improve own and other's life according is the next concern.

As individuals move through a life course, it seems reasonable to expect that personal finance practices, such as budgeting, savings, spending, borrowing, and repayment would also change given that there will always be changes in financial resources and demands. A *budget* is like a roadmap for an individual's finances and helps avoid unnecessary debt and make informed financial decisions to become wise spender, good credit manager, have ample savings for future use, funding for emergencies, and lastly, prepare graduates to smart investment bringing them great wealth in return.

Savings as one of many financial strategies to wealth accumulation prevents students from making costly mistakes and can contribute to a stable economy as productive citizens, sustain financial freedom (Tan, 2012), and meet their future financial goals (Perez, 2017). *Spending* on the other hand is a universal matter among today's college students. Students in private universities and community colleges spent for tuition, room, and board (Thaler and Sunstein, 2008). Additionally, students' money can be spent on items that do not have enough importance in value. When their pocket money runs out, they either take up part-time work or borrow from friends and family.

Borrowing is often viewed as a student loan or a means of financing investment in human capital. This helps students acquire knowledge as well as personal and social attributes. Borrowings may enhance the performance of students' ability in the economy later and hence, gain higher earnings (Li, 2013). Acquiring debt to invest in a college education is commonly called good debt (Chopra, 2013). For the most college student, borrowing decision affects every subsequent financial management decision later in their lives.

Repayment. Increasing awareness of the importance to repay a loan among university students and the deepening of attitudes towards loan repayment is prevalent in many western societies over the past decades. As students experience delinquency during their college days, they consider loan repayment as a burden and hindrance to the many life options after graduation. In this lifecycle, the emphasis is given to the contribution of financial literacy to a more informed personal finance practice and decisions.

Financial Literacy. Financial literacy is an emerging concept first championed by Jumpstart Coalition in its inaugural study on personal financial literacy among high school students (Hastings, Madrian & Skimmyhor, 2013). There is no uniformity among the financial literacy definitions. Potrich, Vieira & Mendes-Da-Silva (2016) defined financial literacy as the mastery of a set of knowledge, attitudes, and behaviors that assumed a fundamental role in allowing and enabling people to make responsible decisions as they strive to attain financial wellbeing. Marsh (2006) also segmented financial literacy into three domains which are the affective, behavioral, and cognitive.

The *affective* domain refers to the individual's attitude. Financial attitude is the application of financial principles to create and maintain value through decision-making and proper resource management (Rajna, Ezat, Junid, & Moshiri, 2011). Thus, developing a regular pattern of saving, having written goals on what to spend, or being aware of one's responsibility for their financial well-being is just among the manifestations of an appropriate financial attitude.

The *behavioral* domain likewise looks into the individual's behavior on finances. This denotes how one behaves about personal financial matters. According to Xiao (2008), financial behavior is a human behavior about money management. Among the desirable financial behaviors may include but are not limited to keeping a record of daily and or monthly expenses, depositing savings, staying within the budget, and making a comparison of prices before purchase.

The *cognitive* domain refers to the individual's knowledge. *Knowledge* is what information one knows about personal finance. Financial knowledge is a particular type of capital acquired in life through learning the ability to manage income, expenditure, and savings in a safe way (Delavande, Rohwedder & Willis, 2008). Knowledge about compound interest, risk and return, inflation, taxes, insurance, and or bonds is some measure of financial knowledge.

According to Mahdzan & Tabiani (2013), increasing financial literacy help promote better financial decision-making for better planning and management of life events such as education,

housing purchase, or retirement, a much more relevant issue among college students. These authors emphasized the need to draw the university student towards a higher level of personal financial responsibility and therefore should be taken seriously by schools. It was found that even with relevant financial instruction from universities, still, students face more financial conjunction.

Financial Socialization Agents. Socialization as a process teaches people to be proficient members of society. It describes the ways that individuals to be aware of societal values, come to understand societal norms and expectations and accept society's beliefs. Little, Scaramuzzo, Cody-Rydzewski, Griffiths, Strayer, Keirns, Ron & McGivern (2013) expanded Mead's Theory of Social Self and Bandura's Social Learning theory on socialization.

Mead's Social Theory emphasizes that the self is not there from birth and the development is over a period from social experiences and activities provided by social groups; an individual will always form part of the whole social organization (Aboulafia, 2016). Harrison, Marchant, & Ho (2014) explained Bandura's Social Learning Theory in the context of how young people learn attitudes and behaviors through observation and imitation of social groups that they come into frequent contact with.

Parents can, directly and indirectly, affect financial socialization and are considered as most influential on an individual's values, attitudes, and practices throughout the life of their children. Parental financial socialization usually comprises modeling consumer behavior, making rules about a person's consumer behavior, and engaging in direct discussions about purchasing decisions, money, credit, encouraging savings, and the giving of an allowance (Allen, 2008). How the children observed regular patterns of parents' consumer behavior would most likely influence their consumer behavior pattern in the future.

According to Simons-Morton & Farhat (2007), *peer socialization* is the tendency for behavior and attitudes to be influenced by the actual or perceived attitudes and behavior of ones' friends and the conforming properties of a group membership. In the study of Mohamed (2017) observing and interacting with peers had a positive relationship to the acquisition of the financial behavior among the young. Among young adults, Lusardi, Mitchell, and Curto (2010) also found out that peers also informed the individual's behavior and attitude toward financial decisions.

Another central socialization agent for children and adolescents is *media.* Little et al. (2013) stated that media serves to socialize individuals in helping pass along norms, values, and beliefs to the next generation. People are socialized and re-socialized by media throughout their life course. Information and communication technology have invaded much of the waking hours of individuals, much more for the Millennials who were found to be the most techno-savvy.

Socialization agents like social institutions of the society such as *schools*, workplaces, and the Government are great influences as they teach how people behave in and navigate these systems. The OECD (2013) framework suggests that financial education should be introduced to learners early on, starting with values formation on money, saving, and the rewards and risks of making monetary decisions. Most Filipino learners are expected to be in school for 195 days (DepEd, 2017). For HEI students, 18 weeks is required in a semester (CHED, 2017). This makes it hard to deny how significant school has on their socialization. It follows then that the school is an essential step towards the acquisition and integration of financial skills to living with others in society (Anastasiu, 2011).

In general, inputs are information that enters the system that is then transformed to produce outputs. Deacon-Firebaugh's Input-Output Family Resource Management Model (1988) supports the interplay of variables. Jorgensen (2008) cited Bubolz & Sontag's (1993) study on socialization agents, accordingly agents are family, peers, community, school, nation, and media that all shape college students' knowledge and attitudes, behavior over time. According to Moore (2003) attitude in combination with financial knowledge and behaviors may be synergistic in driving outcomes. Individuals receive input in the form of financial literacy which includes financial knowledge, financial attitude, and financial behavior, and financial input from financial socialization agents like parents, peers, school, and media. The actual observable personal financial practices are the output.

From the above discussions, this study theorized that millennial student's financial literacy and financial socialization agents have major bearings on the personal finance practices of these students. In this regard, this study investigated the direct relationship between financial literacy to personal finance practices and financial socialization agents to financial literacy and personal finance practices. Also, financial socialization agents impact the financial literacy of student millennials. Figure 1 shows the schematic presentation showing the interplay of variables in the study.

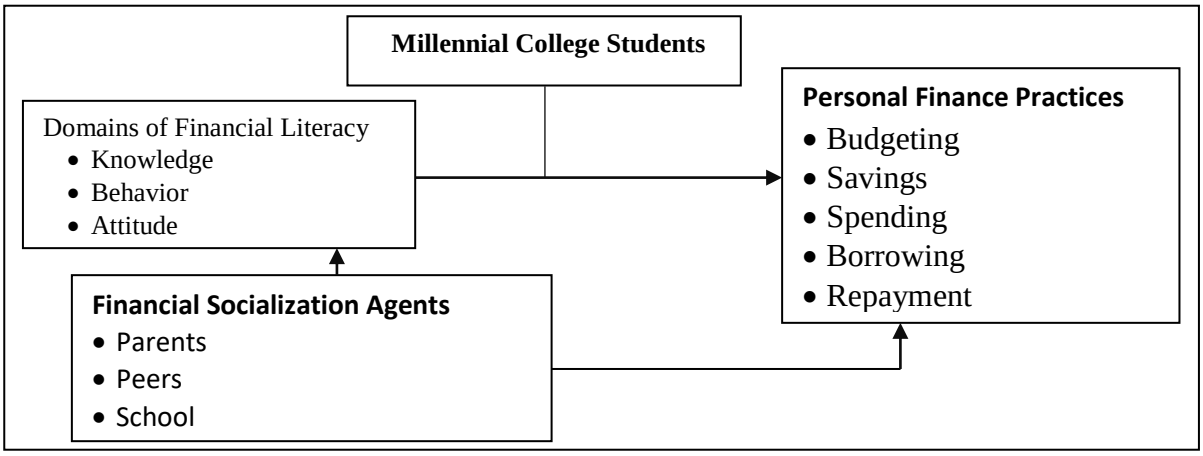

Figure1: Schematic Presentation Showing the Interplay of Variables in the Study

Objective of the Study

This study aimed to determine variables that affect the personal financial practices of millennial students in Higher Education Institutions and developed an exploratory model.

Methodology

This study utilized an exploratory design, in-depth interviews, and observations to increase the authenticity of the results and infer significant implications. There were three survey questionnaires used in the study. These were the Financial Literacy Survey on Financial Knowledge, Behavior, and Attitude, the Financial Socialization Agents Survey, and the Personal Finance Practices Survey.

A modified multiple-choice questionnaire from the studies of Mandell (2008) & Jorgensen (2008) was revised to test the level of financial knowledge of the students. The instrument had undergone item analysis with a Cronbach's alpha of .60. According to Shaari (2016) when the alpha coefficient is between 0.6-0.8, it is considered moderately tough in terms of reliability. A 4-point Likert Scale was used for the domains on financial attitude and behavior that were modified from the studies of Parrotta & Johnson (1998) and Jorgensen (2008).

The Financial Socialization questionnaire was likewise modified from the studies of Shim, Barber, Card, Xiao, & Serido, (2009) and Sohn, Joo, Grable, Lee, & Kim (2012). The Personal Financial Practices questionnaire was also adapted from the study of Marsh (2006) and the study of Mbekomize & Mapharing (2015). Still, a 4-point Likert Scale with scoring procedures taken from the study of Zarate (2015) and further validated by the studies of Juen & Sabri (2017) & Mohamed (2017) was used.

The research instruments were content validated by two experts from the academe and two personal finance advisors. These were tested to ensure the reliability that the items measured the constructs of the study as presented. In the process, some items were revised, and some were removed to establish higher internal consistency of the instruments. The following were the reliability indices of the instruments: Financial Attitude of .875; Financial Behavior of .937; Financial Socialization Agents of .948; Personal Finance Practices of .938; Overall reliability index of .953.

An in-depth interview was conducted after the best fit model was generated. Questions were made based on the result of the study. Proper procedure was followed for the conduct of the interview and informed consent was signed by all the interviewees.

A total of 641 students enrolled in seven (7) Higher Education Institutions in Northern Mindanao, Philippines. The respondents were all enrolled in Colleges offering business and public service-related or aligned courses. Descriptive statistics and multiple regression analysis were used to expose the exploratory contributions of each factor on each of the scales. The

structural equation model (SEM) was utilized as the main method to generate the personal financial practices exploratory model of millennial students.

Results

Table 1 presents the impact of two independent variables, financial literacy and financial socialization agents on the personal finance practices of millennial students.

Table 1: The Impact of Independent Variables on Personal Finance Practices

Independent Variable	Dependent Variable: Personal Finance Practices			
	Beta	T-value	P-value	Interpretation
Constant	.031	.191	.849	---
Financial Literacy	1.191	14.655	.000	Significant
Financial Socialization Agents	0.168	5.337	.000	Significant
R = 0.574	R^2 = 0.330	S = 0.317	F = 157.128	P = .000

Given the F value of 157.1.28 which is highly significant at .000, the model above is best represented with the equation below:

Personal Finance Practices = .031 + 1.191FinLit + .168FinSocAgents

Table 1 presents the multiple regression analysis to demonstrate the impact of financial literacy and financial socialization agents on the personal finance practices of millennial students. The data show that millennial students' financial literacy and financial socialization are predictive of their financial practices. The Financial Literacy with a beta of 1.191 has higher impacts than the financial socialization agent with a beta of .168. However, given that the t-values are significant, this shows that the independent variables impact significantly the students' finance practice. The hypothesis is rejected considering the data. Furthermore, the R^2 of 0.330 implies that 33% of the variations in personal finance practices of millennial students can be explained by financial literacy and financial socialization agents.

The result of this current study is supported by some studies. The exposure of the young to socialization agents will impact the literacy rate of students, the more they are interacting with the agents, the more knowledgeable the students will be and vice-versa (Albeerdy & Gharleghi, 2015). Young adults monitored by parents in childhood developed positive attitudes toward personal finance. Childhood financial socialization experiences positively influence financial practices (Kim & Chatterjee, 2013). Alampay & Jocson (2011) states that children are expected to obey adult authority and submit to parental directives as a consideration to the well-entrenched sociocultural values of Filipinos, the respect, and obedience towards elders. In an interview, a student said:

Figure 2 shows that the predictors (input) are Financial Socialization Agents (FSA) and Financial Literacy (FINLIT) and the outcome (output) is the Personal Finance Practices of millennial students.

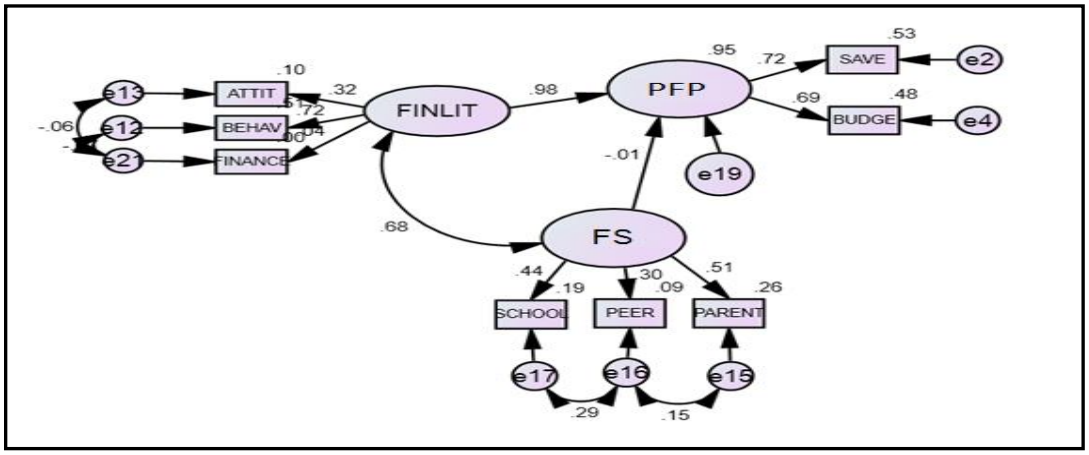

Figure 2: The best exploratory model of the personal-finance practices of millennial students

Shown in Figure 2 is the best exploratory model of the personal-finance practices of millennial students and Table 2 with the goodness of fit indices. Four structural validations and refinement were developed to arrive at the best exploratory model. The model passed the seven standard criteria. The exploratory model shows that the RMSEA's criterion is lesser than .05 which is .031, the p-value is .07, CMIN is less than 2, and the NFI, TLI, CFI, and GFI are higher than .95. The personal finance practice of millennial students is a factor of financial socialization agents and is measured according to the influences of the school, peers, and parents and financial literacy as measured by financial knowledge, attitudes and behavior.

Table 2: Goodness of Fit Indices of Figure 2

Index	Standard Criterion	Figure 2 fit Value
CMIN/DF	0< CMIN/DF<2	1.627
P-value	>.05	.070
NFI	>.95	.972
TLI	>.95	.976
CFI	>.95	.989
GFI	>.95	.992
RMSEA	<.05	.031

The figure shows that persona finance practices (PFP) are directly influenced by financial literacy (FINLIT) and indirectly by financial socialization agents (FSA) since FINLIT and FS are covariates. Financial literacy (FINLIT) has three observed variables which are Financial Attitude (ATTIT), Financial Behavior (BEHAV), and Financial Knowledge (FINANCE). Financial behavior had the highest direct effect of .72 followed by the financial attitude with a .32 direct effect and with the lowest direct effect of .04 is the knowledge. Financial Knowledge

also indicates an r^2 of .00 which implies that financial knowledge cannot explain the financial literacy of millennial students. Financial Attitude and Financial knowledge have a negative and very low relationship of -.06. Financial knowledge and financial behavior also have a very low relationship of .075. Financial knowledge, financial attitude, and financial behavior are measures of Financial Literacy (OECD INFE, 2011).

The result of the model modifications is that there are only three (3) observable variables of Financial Socialization Agents which are the School, Peer, and Parents. The parents' direct effect of .51 is the highest among the agents, the school with a direct effect of .44, and the least among the agents is the.30 direct effect of Peer. Parent and Peers have a low relationship of .15 while Peer and School have a higher relationship of .29. Parent, School, and Peers are the most influential socialization agents of millennial students. Below is some result of discussions with the students during their interview:

> *"After winning a contest, more opportunities came, last time my friends and I joined a free seminar conducted by First Metro Security because we are recommended by one of our trainers in our Department."*
>
> *Rose*

> *"I do save but sometimes if I can't deposit my savings in the bank on time I spend the money with friends and board mates to dine out. My board mates are also the ones who influence me to buy cosmetics products that are not part of my budget."*
>
> *Diel*

> *"My parents, they give me advice like I need to save since I have a baby. That I should be more responsible with my allowances and I should not consume it just for a week. I should know how to budget, not just buy what I want."*
>
> *Sheen*

Early personal finance learning can be obtained through parents or begin at home. Parents have superior influence over school financial education (Shim et al., 2009). Falahati & Paim (2011) considered school and peers as secondary socialization agents. This study is supported by both Mead's Social Theory and Bandura's social learning theory that one's personality developed over time from social experiences and activities and whoever is the frequent contact with the young people influence their learning and practices through observation and imitation. Thus, parents, schools, and peers are the influencers of millennial students' finance practices.

Personal Finance Practices have two variables, after model modifications, which are Savings and Budgeting. Savings has a direct effect of .72 while budgeting has a direct effect of .69. Savings and Budgeting have an r^2 of .53 and .48 respectively which implies that both savings and

budgeting best explain the financial practices of personal finance practices of millennial students. This study affirms the Life Cycle Theory of Modigliani and Brumberg that individuals plan their consumption and savings over time. As millennial student's life cycle stage which is identified as early adulthood, their needs and goals changed to prioritize their studies.

Also shown in Figure two are the Financial Literacy and Financial Socialization Agents' direct and indirect effects on millennial students' Finance Practices respectively. The Financial literacy's direct effect of .98 and the financial socialization's indirect effect is seen in the coefficient of .68 shows that the relationship of the observable variables (FINLIT & FS) is highly significant

This result of this study is supported by the Deacon-Firebaugh Input-Output Family Resource Management Model. Millennial students received financial input in the form of financial literacy which includes financial knowledge, financial attitude, and financial behavior and, influences from financial socialization agents like parents, peers, and school. The system's input transported and produced the output such as the observable personal financial practices of millennial students which are budgeting and savings.

The theoretical and conceptual support of this study greatly aided in the development of the best exploratory model that explained the Personal Finance Practices of the Student Millennials. It explained that the personal finance practices of the millennial students could be predicted with their financial literacy specifically their attitude and behavior. On the other hand, the financial socialization agents such as parents, school, and peers indirectly affect the millennial's finance practices considering that it covaries with financial literacy.

Recommendations

The higher education institutions of this study need to review their curriculum and enhance approaches that will improve the financial attitude and behavior of college students. It is also recommended that the school through the parent-teachers association need to initiate and organize a regular forum for parents and family members through the parent-teacher association to enhance the financial knowledge of the parents. This should be a regular continuing financial program to enhance and sustain financial literacy and practices of parents so that they could also improve their influences on their children. Encouraging attendance to financial government-sponsored seminars should be on the agenda of parents. The family members, especially the parent should see to it that they can help their children improve their financial literacy, as the primary source of financial information.

Conclusions

Positive financial attitude and financial behavior among millennial students could result in more desirable personal financial practices, especially *savings* and *budgeting practices*. Although the *financial socialization agents* did not impact significantly on the students' financial practices, *parents, school and peers* are covariates of *financial literacy (financial attitude* and *financial behavior).* This situation also suggests that *parents, school, and peers* indirectly relate significantly with the independent variable (*financial literacy)* and need to be given due attention too. The generated best model of personal finance practices of millennial students is potential in understanding the millennials' financial challenges.

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Existential Realities of Students with Absentee Parents

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ABSTRACT

This is an explanatory sequential mixed-method study that investigated the existential realities of students with absentee parents. By doing stratified sampling, they used to survey and focused group discussions which were recorded, transcribed, validated, analyzed, and interpreted by the researcher following Litchman's approach in analyzing experiences. They were used to achieve an understanding of the existential realities among students with absentee parents. Data were gathered from 742 participants. The study was anchored on Rational Maintenance and Attachment theories popularized by Daniel Canary and John Bowlby (2000) which was used as a framework to guide the design of the study. Results of the study showed that students are not greatly affected by their parent's absence, but they have developed coping strategies in handling their situations such as focusing their energy on their academic life and became more resilient in facing their lives and family situations. The phenomenon of parents' absenteeism was discussed and analyzed and results in yield that students' existential realities were characterized by an initial feeling of sadness when parents left them but as years ago by they tend to understand the situations that lead them towards acceptance of their family realities. The guidance counselors may strengthen their counseling service to the students and reach out to them regularly through a strength-based approach and be able to sustain the support group and maintain group growth sessions to enhance their life skills in facing these challenges.

Keywords: Existential Realities, Students, Absentee Parents, Coping Strategies, Common Issues

Introduction

One important necessity for youth is the development of a positive self-view that rises and falls in response to the behavior of others. The development of competence in facing difficult situations is contingent upon the availability of social support system; the most important of which comes from parents. Parental warmth, nurturance, and active involvement with their children are positively related to the latter's psychological adjustment and self-concept. Most often, the children are observant of their parents and the satisfaction and harmony in the marital relationship are related to their psychological well-being. The moment marital discord happens, the psycho-social adjustment of youth and children is affected. Children who perceived greater conflict in their families have lower self-concepts. This anger and feeling of abandonment can lead to mood swings or physical aggression, leading to difficulty in school or when interacting with peers. The child may conclude that he or she is unlovable, or not worthy of love.

In a rapidly changing society, when adults are struggling to adapt to a new social order, few adults are genuinely committed to helping teenagers attain healthy adulthood. Parents who are themselves awash in the tide of social change and are looking for self-fulfillment may have a different reaction to the teenager. A parent going through a midlife crisis may be too self-absorbed with his or her voyage of personal discovery to appreciate fully and support the needs of a teenage son or daughter.

Humans are motivated to maintain a dynamic balance between familiarity-preserving and stress-reducing behaviors. People are motivated to maintain fair relationships but they need to develop a secure dependence on parents before launching out into unfamiliar situations. Students with absentee parents may find little reason to maintain involvement where they are treated unfairly and this is shown in how they communicate themselves with the world. This would also make an impact on their overall mental health and implies their educational achievement. When only one parent is away, the remaining parent may assume the roles of both in terms of educating their children resulting in a little reduction in family inputs on children's education. Children experience intense distress when separated from their mothers. Many studies have examined family communication processes to identify patterns that either promote or hinder optimal growth and development.

Family communication styles consistently demonstrated small to moderate effects on family members' communication behaviors, emotional well-being, and mental health symptoms. The experiences of students with absentee parents had greatly affected the communication patterns among and between the family members. If there is a gap in the communication process within them, it may lead to some negative relationships and negative emotions which may manifest towards each other because they were not able to fully open themselves to talk about their situations. On the other hand, while the children are in school it may be given importance if parents could support the studies of their children not only focusing on giving them the material things and needs more so, on giving premium the psychological support and care for the child as

they embark to this intellectual journey. Epstein, Bishop, Ryan, Miller, & Keitner, (1993 cited in Peterson, 2009)

Lastly, the mental health of children is of prime importance, those children whose parents are not around with them tend to be more vulnerable to psychological risks for guidance and direction is not given to them by an authority figure. Further, these students with absentee parents may experience educational achievement despite parental absence which paves way for them to focus their energy towards achieving something to be more appreciative of their parent's effort in going abroad. Likewise, some of them may also have mental health issues as a result of parental absence and lastly, communication patterns among and between the students and their parents which may also be a major factor in how they relate to each other as far as their relationship is a concern.

This study was anchored on Relational Maintenance Theory wherein it states that social relations are regarded as biologically rooted and genetically encoded fundamental motivational processes. Thus, sexuality and aggression are understood not as preformed instincts with inherent meanings which impinge upon the mind but as powerful responses.

Early relationships like later relationships are multiple and complex. They are not simply registered but experienced through physiological response patterns, temperaments, sensitivities, and talents which comprise the individual life relational nature of human experience.

Five relational maintenance strategies include Assurances (expressing commitment, faithfulness, love); Network (involvement with social networks); Openness (disclosure and other communication); Positivity (being upbeat and cheerful); and Tasks (sharing household chores).

Maintenance communication protects the relationship to keep it in existence. People engage in maintenance behaviors to keep their relationships stable (Canary, 2015).

This study considered the concept of permutation. It is defined as a major or fundamental change based primarily on the rearrangement of existing elements" (Elkind, 2009). Separation of parents is one major life change for just about any teenager to be concerned with. When the family is permuted and which would usually be a consequence of divorce, the traditional order of things change.

The theory of John Bowlby was also used as the theoretical framework of this study. Bowlby defined attachment as a "lasting psychological connectedness between human beings" (McLeod, 2009). Attachment does not have to be reciprocal. One person may have an attachment to an individual which is not shared. Attachment is characterized by specific behaviors in children, such as seeking proximity with the attachment figure when upset or threatened.

According to McLeod (2009), attachment is a deep and enduring emotional bond that connects one person to another across time and space. The theory explains how the parent-child relationship emerges and influences subsequent development.

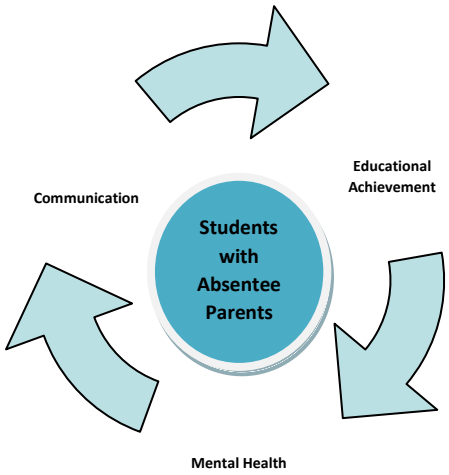

Figure 1: Schematic Diagram of the Conceptual Framework

Figure 1 showed that the students with absentee parents may experience educational achievement despite parental absence which paves way for them to focus their energy towards achieving something to be more appreciative of their parent's effort in going abroad. Likewise, some of them may also have mental health issues as a result of parental absence and lastly, communication patterns among and between the students and their parents which may also be a major factor in how they relate to each other as far as their relationship is a concern.

Research Methodology

This section presents the research design used; the participants of the study, the instruments, and the data gathering procedure and data analysis.

Research Design

This is a descriptive design that primarily employs an explanatory sequential mixed method approach in data generation and analysis. The quantitative data was generated through a social survey while qualitative data made use of focus group discussion to relevant gather data.

Participants of the Study

Participants of the study were the college students from the catholic university who are currently enrolled for the academic year 2016-2017 coming from the different colleges of the university and whose ages range from 16-21 years. A pre-survey was conducted to check if the students fit in the inclusion criteria set forth; Participants have absentee parents which may categorize into three (3): 1. parents working abroad, 2. deceased parents or 3. separated parents and was selected via convenience sampling and FGD participants were chosen representing each college of the university.

Research Instrument

This study made use of a three-part questionnaire which gathered the following: (Part 1) the demographic profile, (Part II) Survey Questionnaire, and (Part III) Focus Group Discussion Guide. The Part I Demographics consisted of name (optional), age, course, parent's occupation, and family income are information to be included in the profile. Part II consisted of the survey questionnaire to identify the communication, educational achievements, and mental health of the students with absentee parents. Part III consisted of the guide questions for focus group discussion. Four experts scrutinized and analyzed the questions and gave their comments and suggestions, using the Good and Scates' Evaluation Form which obtain a mean of 3.70 and is considered to have high validity index. The survey questionnaire underwent obtain a Pearson R 0.93 which is considered a very high-reliability score.

Data Gathering Procedure

The following procedures were observed during data gathering. Preliminary data gathering started with a pre-survey to identify students with absentee parents. After which, students who had been identified as having absentee parents were given the survey questionnaire. A free prior informed consent form was given to the participants explaining to them the research processes that may take place in the study. Considering the sensitivity of the topic; rapport building with the entire target participants will be established in all cases. The researchers ensured that the purpose of the study was explained thoroughly despite being a personal and sensitive topic.

From the survey participants, the investigators choose 8 students to be part of the focus group discussion, these participants were assured as to the confidentiality and anonymity of their responses such that their narrative stories carry the fictitious name and will be recorded and transcribed. These notes and transcriptions were organized and structured for integration in the overall discussion of the study and its findings.

Results and Discussion

Through the pre-survey, 724 participants were identified as having absentee parents. Data revealed that 300 out of 724 respondents often want to be around and talk to their absent parents while 206 likewise mentioned that they want to be around and talk to their parents all the time. Only 49 of the respondents indicated that they never want to be around and talk to their absent parent.

A part of any child will always be dependent on a parent. Especially those children who are still in school, they would want support and affection from parents. They may display an independent attitude but this research shows that deep inside them they are still very much dependent on their parent and this sense of dependency is part of their reality and overall outlook in life. It showed the prevailing issues and needs of the participants concerning communication. It was indicated that the social sphere of 263 or 36.3% of respondents was rarely limited in the absence of their parents. Only 45 respondents or 6.2% indicated that their social sphere is limited all the time due to the absence of their parents.

The school is one venue where these adolescents could express themselves well especially in terms of sharing and disclosing interpersonally. The majority of the students nowadays accept the reality that single-parent households are very much in existence. But this is not a deterrent in terms of their social life and social undertakings with other people.

Participants consider the use of technology as an important tool to communicate easily with their parents and they rarely have disagreements over the use of it. This could still be validated on the part of the parents because this perspective comes from the view of the students. Although a majority of the parents do employ technology as part of how they evolved with life and with their children, this area needs to be considered as to how they see this way of interacting with their children.

The importance of open communication in single-parent families can never be underestimated. Open communication among families will pave way for more harmonious relationships within them. Healthy communication will ensure that family conflict and issues are effectively managed accordingly. It was further shown that 54. 8% of the participants were one in saying that they never engage themselves in relationships that might influence them negatively. Participants are more aware of the implications of their decisions brought about by rational thinking because they are motivated to be self-reliant and empowered because of their situation. While the remaining 2.8% continuously engaged in unfavorable relationships because of their unwise choices and seems to be staying in that situation despite knowing unhealthy relationships.

In relaying messages to their parents, most of them rarely (39.8%) never (31.2%) sought help through significant others while very few of them (8%) obtained help with an aid of significant others. Children who exceptionally share intimate and personal relationships with parents before the separation are likely to continue such remarkable relationships after the separation. Communication is important not solely during separation but more so over time as families may undergo further change and transition.

When it comes to sharing deep feelings, many of the participants indicated that they rarely (31.8%) prefer to share it with others in comparison to those who preferred to share it with others frequently (31.8%). Only very few (12.4%) of the participants indicated at no time they preferred to share their deep feelings with other people.

Effective and open communication is frequently demonstrated through active listening whereby ideas, deep feelings, and problems of children are willingly listened to and accepted by parents. It encourages children to think and talk freely rather than run away from them. Otherwise, children would get in touch with someone with whom they can share their problems, heartaches, fears, and failures with no recriminations.

This may imply that robust and resilient parents contribute to their own children's well-being. As they remained hardboiled amidst adversity, they are better confident and flexible to manage stress and assist their families to do the same. On the contrary, parents who succumb to

vulnerability are likely to engender emotional problems among children which can be manifested in marked low self-esteem, lack of patience, and self-control that oftentimes may create distress.

Moreover, parental separation was a very private matter for participants and most were reluctant to talk to other children and others. They were sometimes unsure about whom they could trust to understand and accept them and were most willing to talk to people they believed would understand them, such as other children whose parents had separated or divorced.

The result of the survey revealed that a significant majority of the participants (40.9%) rarely have trust issues while more than one-fourth of them frequently have. Correspondingly, only a few (14.1% and 16.7%) continually and occasionally have trust issues with their peers as reflected in.

A good number of participants (36.7%) rarely nor never (32.2) felt being left out and abandoned by people. However, some of them (21.4%) frequently felt being left out and abandoned by people and very few (9.3%) always felt being left out and abandoned by people. Children need to receive reassurances from their parents as it warrants concern about their well-being and commitment to being available for them. Indeed, children value good relationships, love, and support, and dislike conflict within the family. Close supportive links with parents, other family members especially the grandparents, and trustworthy friends are the significant persons identified in putting things together and making it easier for them to cope with parental separation.

With regards to coping, more than half (60.9%) of the participants revealed that not at any time they engaged in alcohol, smoking, drugs, and online games and find comfort. Likewise, less than one-fourth (20.3%) of them rarely engaged in vices to find comfort while only very few (6.8%) continuously engaged in alcohol, smoking, drugs, and online games and find comfort.

Most of the participants rarely and at no time experienced that their parents appeared to have misunderstood them. To some of them perhaps, the feeling of being misunderstood may be associated with their feeling of being left alone, inhibited expression of deep feelings which may further influence by the trust issues that might cause them trouble. Data revealed that participants rarely (35.4%) and never (32.7%) felt the lack of care of their parents when not around. This probably suggests that the absence of their parents is not a big issue for the majority of the participants. This is likely because, at this stage, adolescents have already gained much independence from their parents. Independence at this time is a strong need among adolescents. They are more comfortable when with their friends than with their parents.

The majority (68.8) of the adolescents do not engage in sexual activities without their parents' knowledge. This data represents that adolescents are likely not comfortable with sexual things especially when parents are informed. This may be attributed to the fact that Filipinos are known to be conservative given the strong Catholic faith and sex as a topic is considered taboo especially for parents and adult people. This further implies that adolescents are not open to

sharing experiences related to sex. Thus, parental communication seems to be weak when this is the matter.

The parental arrangement is a necessity when parents decide to get separated or annulled. A positive parental arrangement may require a good relationship among the family members. According to Nielsen (2017), the parents with joint custody have more cooperative relationships with their children than those parents with joint physical custody presents that parents with joint custody have more cooperative relationships than parents with joint physical custody and parents with sole physical custody. In addition, results likewise explain that custody may have already been settled earlier thus conflict and effects on the children is minimal.

Moreover, parent's separation is always a big issue among children that destabilizes the family dynamics of the family. Most children report their painful feelings and a significant minority suffer extended and prolonged symptomatology related to parental divorce that may include both internalizing and externalizing problems (Lee, 2014).

Data reflected that there were 31.8 % of the participants not affected when their parents begin to criticize each other. Likewise, there were 30.2% of the participants may be rarely affected. Given these percentages, participants can likely tolerate or probably used already with the exchange of criticism of their parents thus for them it is not anymore a big deal. In addition, given the fact that participants are already in their adolescent and young adult stage, they have probably learned to deal with it or have likely found an escape for them not to witness this situation. Or it might; that participants seldom or occasionally witness this instance the fact that they are always in school, or their parents are already separated, or maybe busy in their work or working abroad.

When confronted with challenges, most participants may likely possess a positive attitude that enables them to deal with them. Family ties and a strong support system probably also play a very important role in the process even with the absence of their parents. With the assistance of technology, getting in touch with parents and loved ones for any concerns is very convenient. So despite the physical absence, technology somehow bridges the distance and makes things lighter for children left behind by their parents.

Results further indicate that despite having no parents physically most of the time, they can manage to do their responsibilities and have a better understanding of the very reason why their parents are not with them. This is an indication also that participants have reached a certain level of maturity, acceptance, and resilience. Data revealed that 66.9% of the participants have not less involved in any disciplinary sanction throughout their stay in the university. This explains that even with the absence of their parents, they have not dealt with any violations that complicate their status in school. This result likewise was supported by the other items in the questionnaire that participants indeed are true to their commitment to their studies and at the same time have a positive attitude towards their future. Despite the absence of their parents, participants regard this as more of an inspiration to perform and accomplish their goals instead of getting into trouble.

As noted in one of the tables in this study, participants are coping well and resilient against the different challenges they encounter.

However, participants of this study expressed that they rarely experience problems (37.4%). While 23.5% of the participants felt able to manage time well in their day-to-day activities. Results show that participants in one way or another have good time management skills that they know how to prioritize their responsibilities despite the absence of their parents. They probably get in trouble with time only when there is so much to accomplish in just a limited time. Yet despite these possible demands, they are likely able to comply even with so much stress. Their social media time can likewise probably be their way of coping also and a chance for a short relaxation.

It should also be noted (24.7%) that there were participants who seem often and all the time (14.2%) experienced trouble in time management. These concerns may be attributed probably to their personality temperament at the same time their inability to manage their schedule very well. They tend to get overwhelmed when given so many responsibilities and so instead of working it out positively, some tend to procrastinate and may escape from work. According to Starter (2014), procrastination is the major enemy of time management.

Resilience can be attributed to the students' personal experiences that have molded them into more mature and stronger individuals. Perhaps their separation from their parents made them stronger and more resilient. The support of significant others such as the surrogate parents, siblings, teachers, and friends likewise contributes to the development of a stronger personality that can survive the challenges of life. The school that has become the second home for students played a big role in the enhancement of resilience among the students. Those who have strong coping skills and are innately resilient are likely to be motivated in school despite their parent's absence.

These adolescents performed their best in school and even sacrifice a lot just to ensure that they achieve something because they tend to think of the sacrifices of their parents who are away from them. Also, by making good in their academics they make their parents proud of them, and eventually after they graduate, their parents will go home and they will be the ones to support them.

Data showed that more than one-third (39%) of the participants rarely have difficulty dealing with complicated subjects and are missing the physical help of their parents, about one-third (29.3%) have difficulty dealing with complicated subjects and are missing the physical help of their parents, almost one-fourth (23.3%) often have difficulty dealing with complicated subjects and are missing the physical help of their parents and a few (6.9%) have difficulty dealing with complicated subjects and are missing the physical help of their parents all the time.

With the rise of technology, cellphones, the internet, and social media have become an important part of a child's life that they find it difficult to live without. Many children nowadays have

become addicted to social media perhaps because they have found refuge in it. The psychological impact of social media on individuals and their sense of "self" becomes alluring to the teenager who needs some kind of recognition or affirmation. Teenagers feel that they have never been more linked, more connected, and more bound to virtual reality.

Lucky are they if they are influenced for good but when their peer influences them in a bad way, it may pollute the minds of the children, and sooner, perceptions may become twisted and values may deteriorate. Aside from this, preoccupation with social media may lead to depression, anxiety, or even suicide. These effects put the children at risk.

Data showed that 64.4% of the participants never encountered an abrupt decline in their grades when their parents left them, some (22.5%) rarely encountered an abrupt decline in their grades when their parents left them, a few (7.9%) often encountered an abrupt decline in their grades when their parents left them and very few (4%) have encountered all the time an abrupt decline in their grades when their parents left them. This shows that more than half were not affected by their parent's absence. They were mature enough to understand why their parents needed to leave them. They took their experience as a challenge instead of a loss. They did not dwell on their frustration and instead looked at it from another perspective. They devoted their energy towards improving themselves. To those who were deeply affected by the parent's absence, separation from their parents could have been a tough experience for them, and that they needed time to recover from the separation. Separation distress as one of the distinguishing characteristics of attachment occurs in the absence of attachment figures (Cherry, 2017).

Furthermore, data showed that 49.4% of the participants never joined school-related activities that their parents are not supportive of them, 25.1% rarely joined school-related activities that my parents are not supportive of, 17.5% often joined school-related activities that their parents are not supportive of and 7.2% joined school-related activities that my parents are not supportive of. This means that most parents are supportive of their children's endeavors. They try to cover up with the distance and the lost time with children, so they support whatever the children are interested in. Moreover, students need support from parents, teachers, and administrators to not fall behind and leave school due to risky behaviors, poor attendance, and low grades (Santacruz, 2016).

On the contrary, some parents would not support their children in their activities. This is one of the reasons why children lose their motivation because they feel that there is no support from their families. When this happens, their academic performance could be greatly affected. Data showed that more than half (63.7%) of the participants were never forced to take a degree that they do not like, a few (18.6%) were rarely forced to take the degree that they do not like, very few (10.8%) were often forced to take the degree that they do not like and 6.6% were always forced to take a degree that they do not like.

Parents have sacrificed being away from their children just so they can go to a good school to have a quality education and to live a decent life. Sometimes, however, in exchange for the

financial stability of the family, children lose their direction in life. They would find love and attention elsewhere which is why many of our teenagers are either hooked on drugs, addicted to alcohol or nicotine while still others become pregnant at a very early age. The prize of leaving the children for a greener pasture is so great that the purpose of going abroad is defeated.

A few (13.5%) and (8.6%) expressed that the financial support is always delayed. This indicates a need for students to find other options in case the money does not arrive on time and is always delayed and may make the students anxious all the time. They need to be prepared to avoid getting frustrated. To address this issue, parents should be made aware of their important role in the development of the children. Lack of support from parents or family members may affect academic performance in school.

This may imply that parents have an important role to play in the development of their children's personality and behavior, without their presence these children may experience a lot of struggles and confusion which may lead sometimes to some mental health concerns. They decide to leave the country to find better opportunities where they can support more the needs of the family sometimes at the expense of the absence of guidance and authoritative figure to their children when they were growing up having discipline issues whenever manifested at the school or school. An intervention program that is a socially responsive and relevant program will be developed to address the developmental needs and concerns of these children in collaboration with the stakeholders which may include the school, church, government, and media respectively.

Conclusions

This section presents the conclusions and recommendations based on the problems presented in the objective of the study in the light of the results including suggested solutions to the problems addressed to its intended purpose. Based on the findings of the study, the only conclusions are drawn:

- The majority of the participants may initially react to the situation of their parent's separation and loss. However, these adolescents gradually embracing these realities brought about by their sense of assurance that despite the distance of their parents they can still feel the emotional connectedness within the family. They may experience communication issues due to their parents' absence but technology, enables them to be connected despite the distance which paved way for a closer relationship as a family. With the advent of technology, parents can easily communicate with their children, provided they have access to it. These new platforms of communication bridge the gap of physical and emotional distance and enables the parents to continually monitors the activities of their children vis a vis school engagements. Furthermore, there is no substitute for face-to-face communication, and adolescents with absentee parents have developed resiliency by accepting the reality of the situation.

- Moreover, in terms of educational achievements; they value their educational experiences and give priority to their studies. They could have excelled more if they feel the physical support of their parents. Lastly, in terms of their mental health, they experienced a roller coaster of emotions such as sadness, struggles, and longing for their loved ones. Nevertheless, they were accepting of these realities and choose to be more resilient over their adversities. As for their coping mechanisms, they employed healthy and productive ways of dealing with their life challenges. They ensure that they strike a balance with the different aspects of their life through the support of their family, friends, and even significant others whom they feel they are being loved and accepted as they are.

Based on the foregoing conclusions, the following recommendations are offered to the sectors concerned: USLS Administrators may consider the following:

- This is to provide administrative support to the GEC programs and services for students with absentee parents. Moreover, to take into account the existence of this vulnerable group of students and policies relating to their especially student support services.
- The guidance counselors may focus on strengthening their counseling service; the counselors as full-time faculty may be considered as “professional faculty status” under their licensed which they still enjoy the same benefits as that of a full-time teaching faculty, for them to focus on serving the students through their counseling services. Moreover, The GEC as a unit should encourage the students with absentee parents to be more receptive and participative in the different activities organized by the GEC and the guidance counselors like individual and group counseling sessions and workshops related to their issues and concerns. The guidance counselors may strengthen their counseling services to the students and reach out to them and be able to sustain the support group to these students and organized growth group sessions.
- Furthermore, the parents may consider the following. Parents/guardians may attend parenting sessions organized by the school to help them hone their skills on how to properly raise their children experiencing separation anxiety. Also, parents may consistently communicate with their children to ensure that their sense of connectedness among and between the family members.
- Students may consider taking initiative in their development by engaging in worthwhile activities that such as those initiated by the guidance office to help them improve themselves by joining GEC special programs such as Peer Facilitators and Children with Parents Abroad. Be inspired and motivated to help other students with absentee parents to survive life even if their parents are away from them by seeking regular counseling sessions with their counselors.
- While academic researchers may consider conducting related researches about students' positive coping strategies in facing the marital separation of their parents and to provide relevant studies on parents’ absenteeism concerning students’ self-esteem and confidence as a basis for enhancing counseling programs.

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